~~5938~~

SERVICE MANUAL

BRAND GOODMANS

14 CTV R/C

MODEL 1400R

CTV 1400R

R-1400

CTV-14

CTV 1422

CTV 1466

1422

1466

CTV 1477

1477

Order spares from CENTRAL STORES

Prefix the part number with the spares order BRAND

TELE

DATE December 1990

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10. White Balance Adjustment

(a). Receive a monochrome signal and warm up the set for 15 minutes.

(b). Set the R.G.B. cut off controls (VR501, VR503, VR505) and the G.B. drive controls (VR502, VR504) at center positions.

(c). Rotate the screen control fully counterclockwise.

(d). Disconnect the luminance output terminal connector and connect TP 5 to ground with a jumper wire.

(e). Rotate the screen control gradually clockwise until the first horizontal appears on the screen.

(f). If the first horizontal is in blue, adjust VR501, VR503 to increase the red and green component level to get a white horizontal line.

(g). Remove the jumper wire and connect back the luminance output connector. Set the luminance and contrast control at normal position. Adjust VR502, VR504 to maintain a good white balance at the brightest part of the screen.

(h). Turn the brightness and contrast controls to maximum and minimum. Observe the screen white balance, if it is not proper in high brightness or low brightness condition, adjust R.G.B. cut off controls or G.B. drive controls in order to maintain a good white balance in both low and high luminance conditions.

11. Luminance Channel Chroma Trap

(a). Tune in a colour bar signal.

(b). The test probe of oscilloscope connects to the pin 3 of IC201 and ground.

(c). Adjust trap coil of DL201 for minimum chroma signal (4.433 MHz).

12. Colour Sync Adjustment

(a). Tune in a colour bar signal.

(b). Set the contrast control to minimum and colour control to maximum.

(c). Cut off the colour killer by connection the pin 2 and pin 12 of IC201 with 10 Kohm resistor.

(d). Short L204 to ground with jumper.

(e). Adjust the colour sync. variable capacitor (C215) on the main board so that the colour bar pattern stand still or drifts slowly across the picture screen.

(f). Remove the jumper and resistor.

(g). Check that the colour sync. is stable with channel changing and power on-off operation. If the colour is slow to appear or the colour sync. is out of order, return the colour sync. variable capacitor (C215) for proper colour display.

13. PAL Matrix Adjustment

(a). Tune in a Philips standard colour pattern.

(b). Set the colour control at maximum position.

(c). If the PAL Matrix adjustment is incorrect, the Venetian Blind would appear in the colour bar area.Then adjustments should be made as follow:

(d). Adjust VR201 to minimize the Venetain Blind in the R-Y, B-Y Decording area.

(e). Adjust L201 & L206 alternatively to minimize the Venetain Blind in the colour bars area.

(f). Repeat (d) & (e) step until the Venetain Blind disappears.

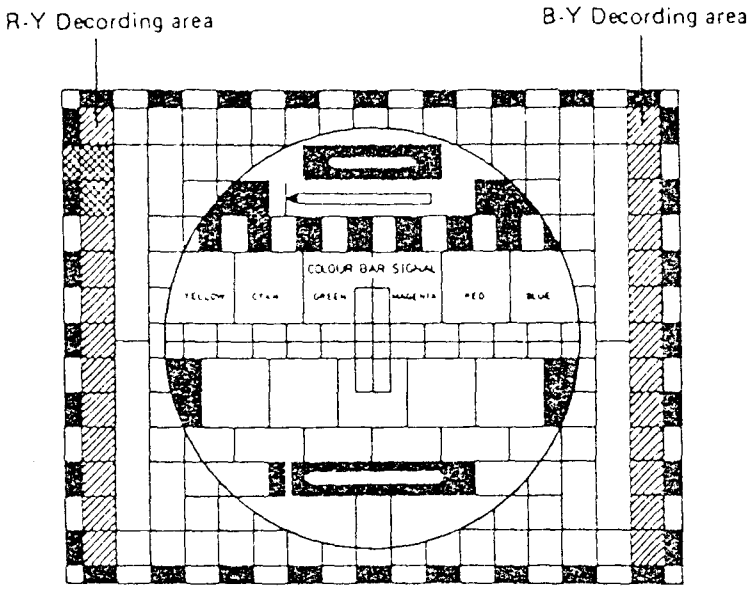


Fig. 12 Philips standard colour pattern

III. Colour Purity And Convergence Adjustment

1. Colour Purity Adjustment

NOTE: Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

(a). Demagnetize the picture tube and cabinet using a degaussing coil.

(b). Turn the Contrast and Brightness controls to maximum.

(c). Adjust Red and Blue Cut-off controls (VR501 and VR505) to provide only a green raster. Advance the Green Cut-off control (VR503) if necessary.

(d). Loosen the clamp screw holding the yoke backward to provide vertical green belt (Zone) in the picture screen.

(e). Remove the Rubber Wedges.

(f). Rotate and spread the tabs of the purity magnet (see fig. 13) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically.

(g). Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.

(h). Check the purity of the red and blue raster by adjusting the Bias controls.

(i). Obtain a white raster, referring to white balance adjustment.

(j). Proceed with convergence adjustment.

2. Convergence Magnet Assembly Positioning

Convergence magnet assembly and rubber wedges need mechanical positioning following fig.13.

3. Center Convergence Adjustment

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

(a). Receive crosshatch pattern with a colour bar signal generator.

(b). Adjust the Brightness and Contrast controls for well defined pattern.

(c). Adjust two tabs of the 4 Pole Magnets to change the angle between them (see fig. 14) and superimpose red and blue vertical lines in the center area of the picture screen. (see fig. 15).

(d). Turn both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the center of screen (see fig. 15).

(e). Adjust two tabs of 6 Pole Magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.

(f). Repeat adjustments 3, 4, 5, keeping in mind red, green and blue movement, because 4 Pole Magnets and 6 Pole Magnets interact and make dot movement complex.

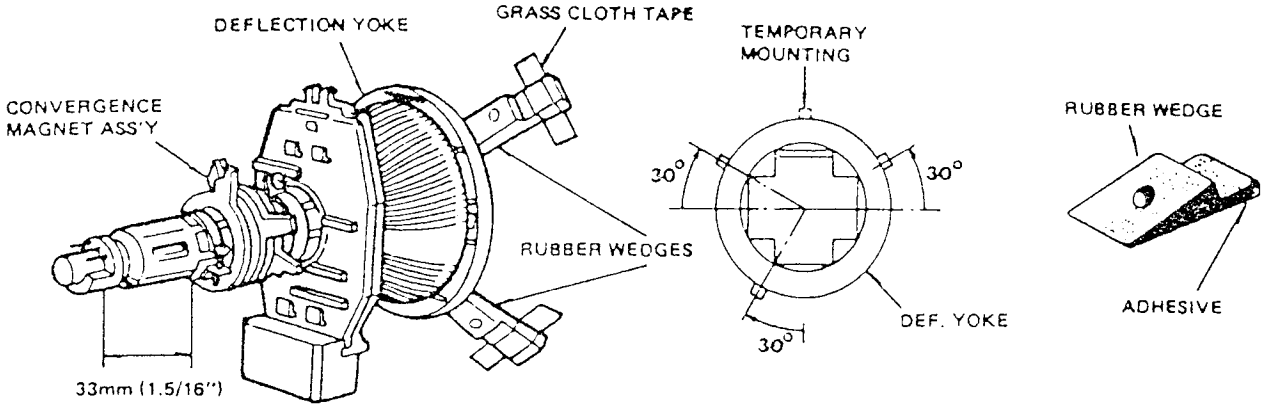


Figure 13 **RUBBER WEDGES LOCATION**

4. Circumference Convergence Adjustment

NOTE: This adjustment requires Rubber Wedges and Glass Cloth Tapes.

(a). Loosen the clamping screws of deflection yoke to allow the yoke to tilt.

(b). Place a wedge as shown in figure 13 temporarily. (Do not remove cover paper on adhesive part of the wedge).

(c). Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (see fig. 15) Push the mounted wedge into the space between picture tube and the yoke to hold the yoke temporarily.

(d). Place other wedge into bottom space and remove the cover paper to stick.

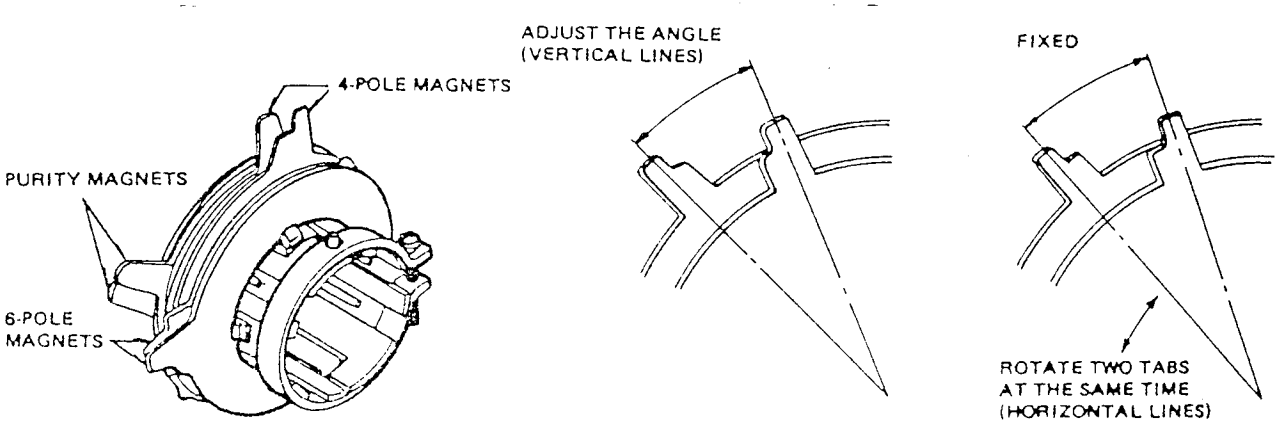
(e). Tilt front of the yoke right or left obtain better convergence in circumference. (see fig. 15)

(f). Hold the yoke position and put another wedge in either upper space, remove cover paper and stick the wedge on picture tube to hold the yoke.

(g). Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.

(h). After placing three wedges, recheck over all convergence. Tighten the screw firmly to hold the yoke tightly in place.

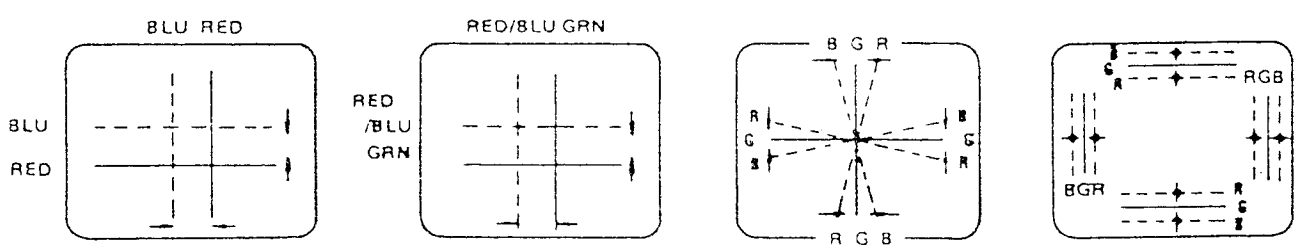
(i). Stick 3 grass cloth tapes on wedges as shown in figure 13.



CONVERGENCE MAGNET ASSEMBLY

Figure 14

ADJUSTMENT OF MAGNETS



Center Convergence by Convergence Magnets

Circumference Convergence by DEF Yoke

Fig. 15 Dot Movement Pattern

REMOTE CONTROL UNIT

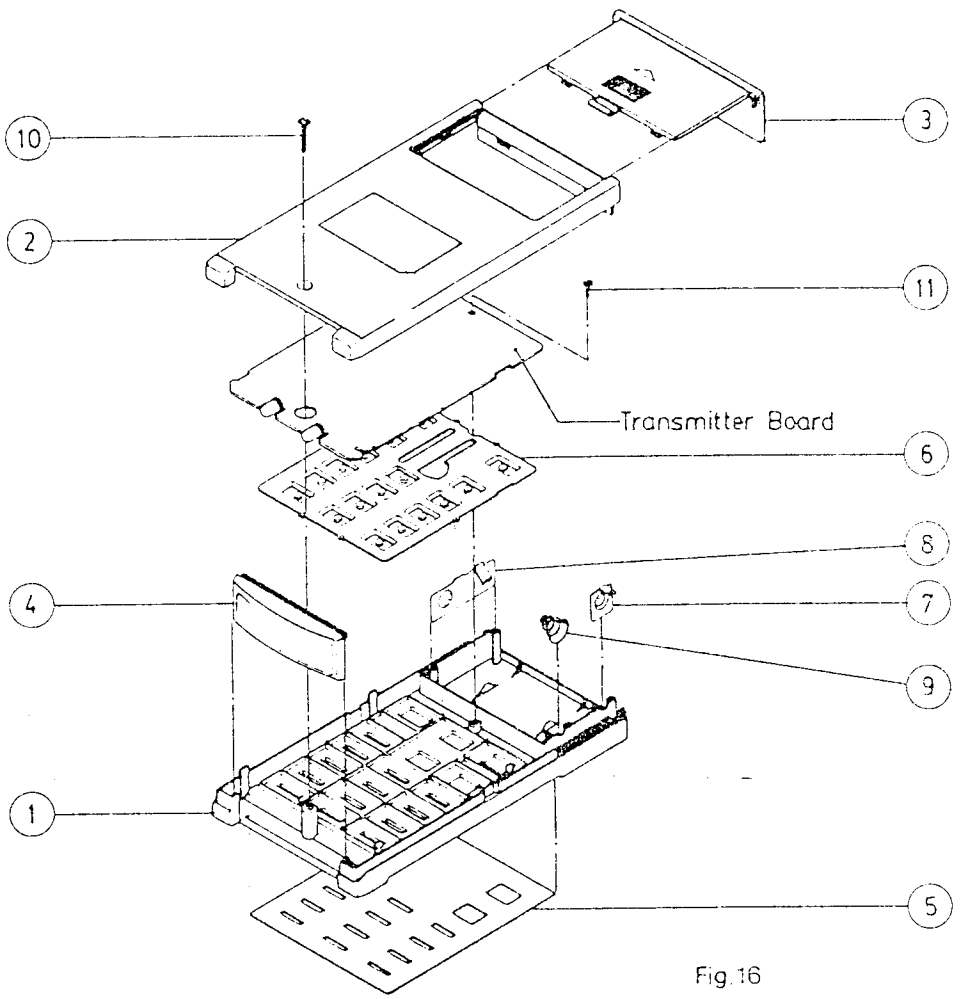


Fig.16

MECHANICAL PART LIST

ITEM	PART NO.	DESCRIPTION
1.	01-01-EA0049-01	Top Cabinet
2.	01-01-EA0050-01	Bottom Cabinet
3.	01-01-CA0051-01	Battery Door
4.	01-01-BA0052-00	Infrared Lens
5.	03-01-BA0018-01	Control Front Trim Plate

ITEM	PART NO	DESCRIPTION
6.	03-01-DA0017-00	Rubber Contact Plate
7.	04-01-AA0024-00	Battery Contact Plate (+)
8.	04-01-AA0025-00	Battery Contact Plate (+/–)
9.	06-01-AA0006-00	Battery Contact Spring (–)
10.	15-1P-T26013-08	Screw T2.6 x 8 P/H (+)
11.	15-1P-T26012-04	Screw T2.6 x 4 P/H (+)

EXPLODED DIAGRAM OF MAIN UNIT

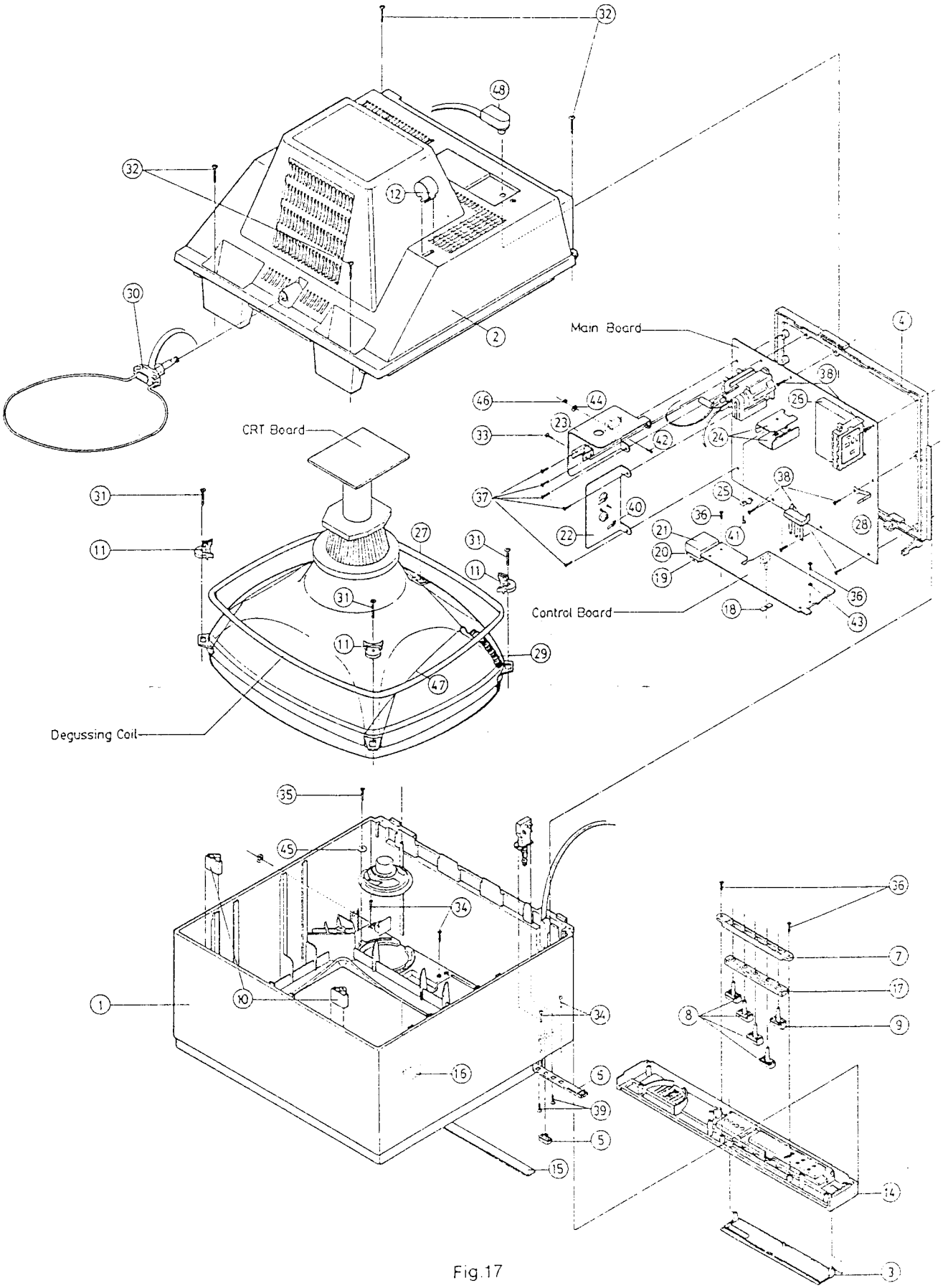


Fig.17

MECHANICAL PART LIST FOR MAIN UNIT

ITEM	PART NO.	DESCRIPTION
1.	01-01-FB0038-05	Front Cabinet
2.	01-01-FB0039-02	Back Cabinet
3.	01-01-CA0041-05	Control Compartment Door
4.	01-01-FA0019-00	Chassis Bracket
5.	01-01-BA0024-00	Main Power SW. Knob
6.	01-01-CA0042-00	Film Holder
7.	01-01-BA0109-00	Vol./Ch. Button Holder
8.	01-01-BA0110-00	Vo./Ch. Button (Up/ Down)
9.	01-01-BA0111-00	Soft Touch Power Button
10.	01-01-AA0045-00	Cabinet Mtg. Holder
11.	01-01-BA0046-00	Picture Tube Mtg. Holder
12.	01-01-AA0031-00	AC Cord Clip
13.		
14.	01-01-EA0108-05	Control Front Panel
15.	02-01-BA0003-03	Channel Lens
16.	02-01-AA0004-00	Infrared Lens
17.	03-01-AA0005-00	Sponge For Button
18.	03-01-AA0008-00	Knob Cushion
19.	04-01-AA0055-00	Infrared Shielding Can
20.	04-01-AA0034-00	Infrared Shielding Cover
21.	04-01-AA0035-00	Infrared Shielding Plate
22.	04-01-BA0026-00	Heat Sink Bracket For Power
23.	04-01-DB0027-00	Heat Sink For Horizontal Amplifier
24.	04-01-AA0049-00	Heat Sink Transistor
25.	04-01-AA0014-00	Transistor Clip
26.	04-01-BA0031-00	PIF Shielding Cover
27.	04-01-AA0016-00	Knitted Clip
28.	04-01-NA0033-00	Wire Lug.
29.	06-01-AA0005-00	Grounding Wire Spring
30.	07-01-NA0006-00	Indoor Antenna- Loop Type (UHF)
31.	15-IB-T40012-25	Screw T4 x 25 B/H (+)
32.	15-IB-T40012-20	Screw T4 x 20 B/H (+)
33.	15-IB-T35012-16	Screw T3.5 x 16 B/H (+)
34.	15-IB-T30012-14	Screw T3 x 14 B/H (+)
35.	15-IB-T30012-16	Screw T3 x 16 B/H (+)
36.	15-IP-T30012-10	Screw T3 x 10 P/H (+)
37.	15-IP-T30012-12	Screw T3 x 12 P/H (+)
38.	15-IP-T30012-08	Screw T3 x 8 P/H (+)
39.	15-IB-T40002-10	Screw T4 x 10 B/H (+)
40.	15-IP-M30502-08	Screw M3 x 8 P/H (+)
41.	15-IP-M30502-06	Screw M3 x 6 P/H (+)

ITEM	PART NO.	DESCRIPTION
42.	15-IB-M30502-12	Screw M3 x 12 B/H (+)
43.	14-01-PD3008-F0	Fibre Washer For Control P.C.B. Mtg.
44.	14-01-SD3256-S2	Spring Washer For Transistor Mtg.
45.	14-01-PE3514-M1	Plain Washer For Speaker Mtg.
46.	16-1H-M30502-03	M3 Nut For Heat Sink/ Transistor Mtg.
47.	18-01-011440-01	Twisted Wire
48.	30-01-NA0001-00	Matching Transformer

BLOCK DIAGRAM

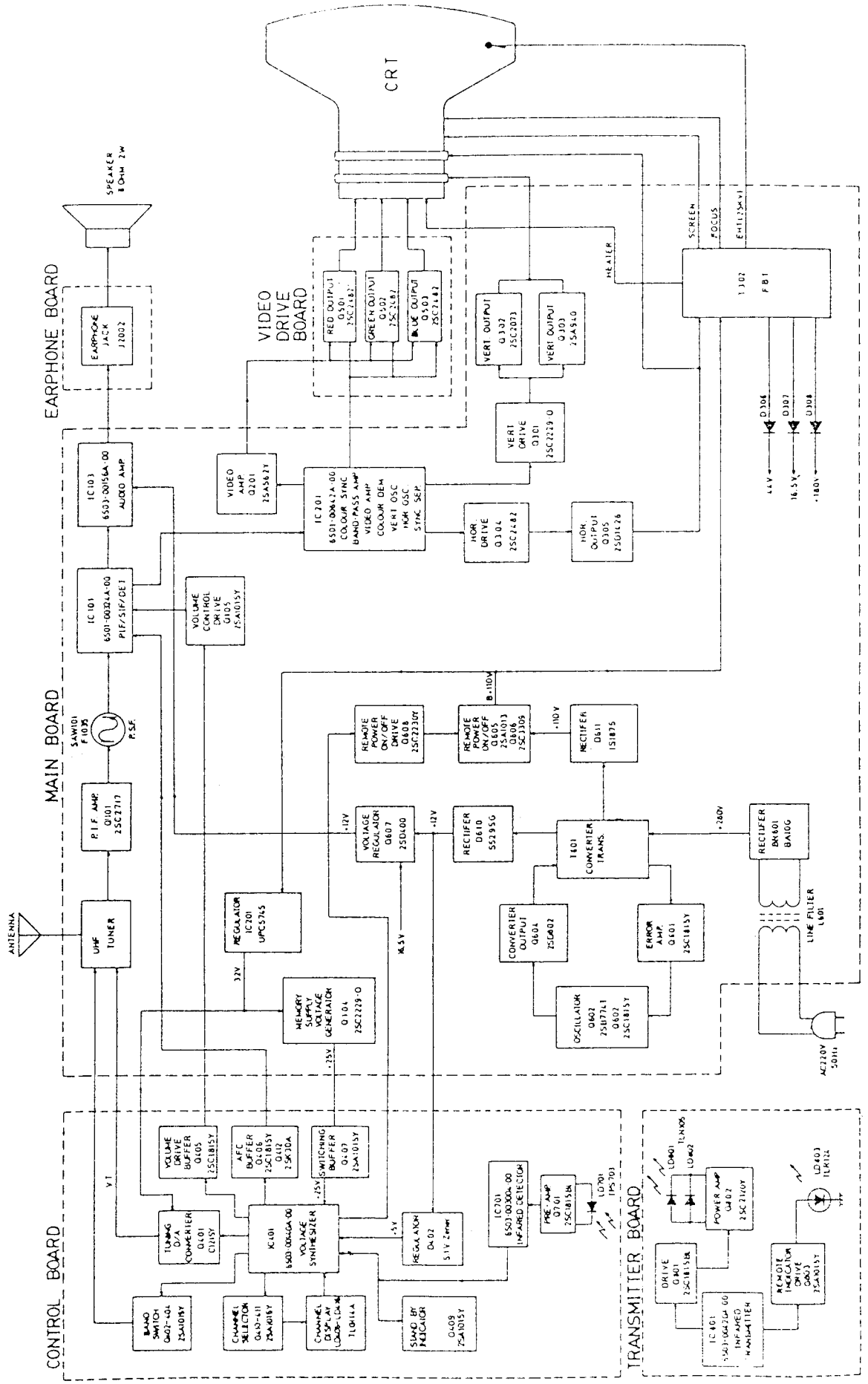
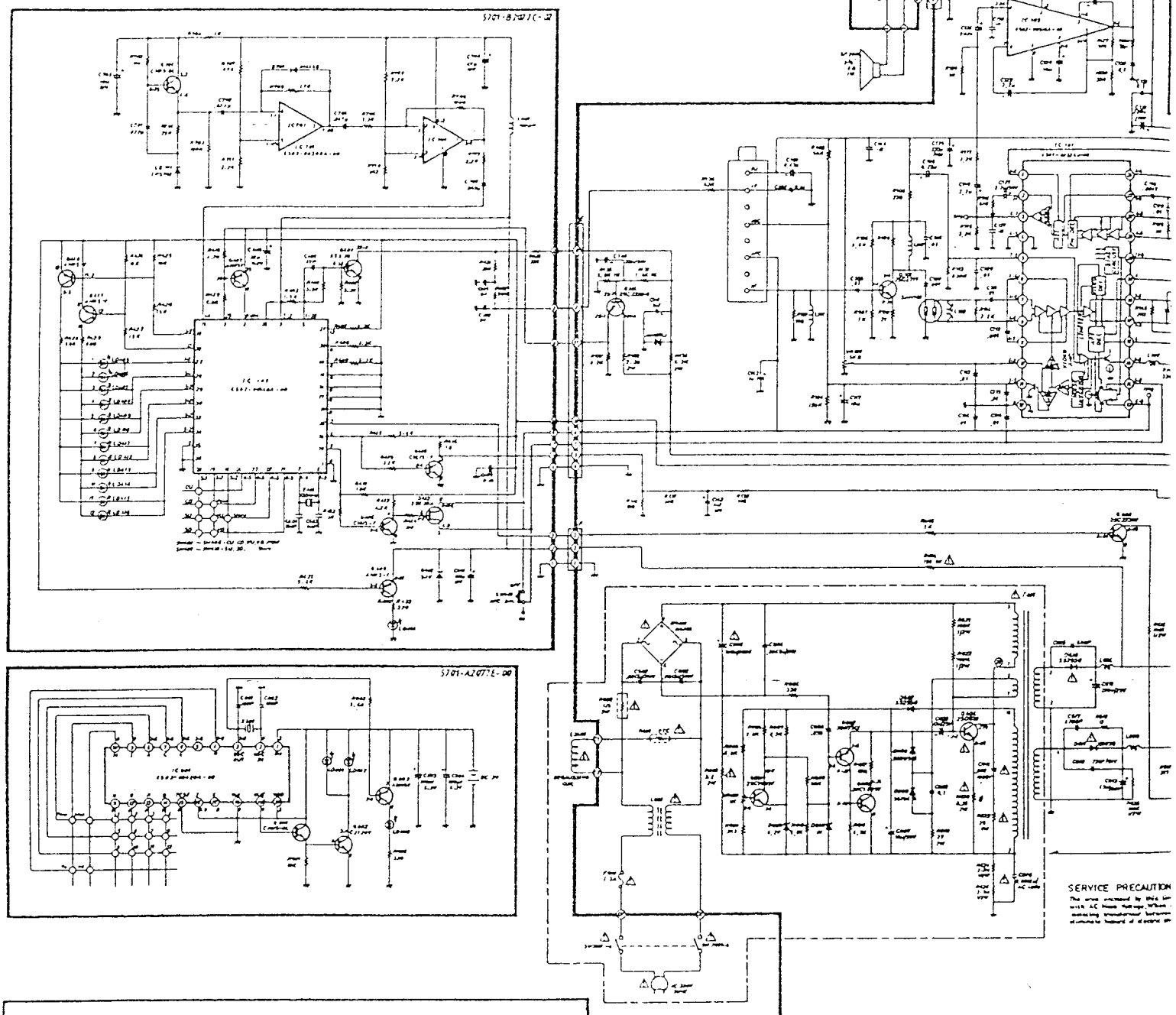


Fig.18

CTV-1477IR



SERVICE PRECAUTION

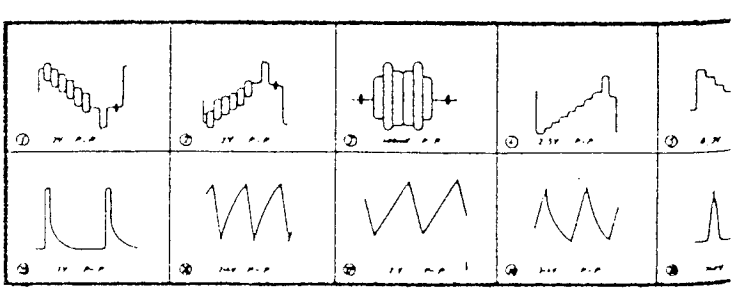
WARNING: Before servicing this chassis, read the X-RAY RADIATION PRECAUTION, SAFETY PRECAUTION and PRODUCT SAFETY NOTICE of this manual.

CAUTION: Parts marked with "Δ" in schematic diagram designate components which have special characteristic important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of the manual. Do not degrade the safety of the receiver through improper servicing.

NOTE: 1. All D.C. voltages are measured under no signal input condition with a voltmeter having an impedance of at least 100KΩ/V.

2. Waveforms are taken by referring to a standard color bar signal applied at antenna input.

3. The circuit is subject to change without prior notice.



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TUNER CIRCUIT

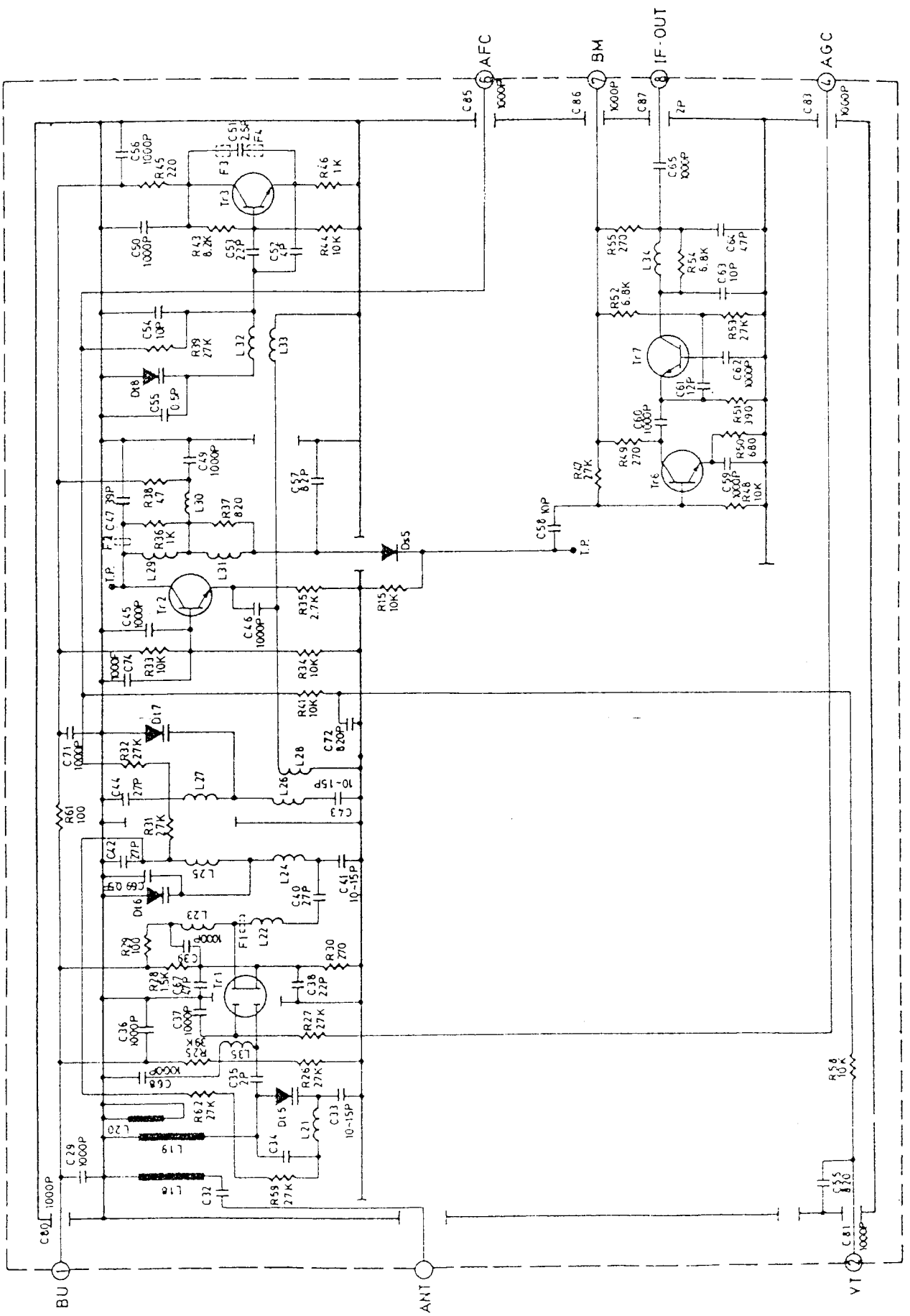


Fig. 20

COMPONENT VIEW OF MAIN PCB

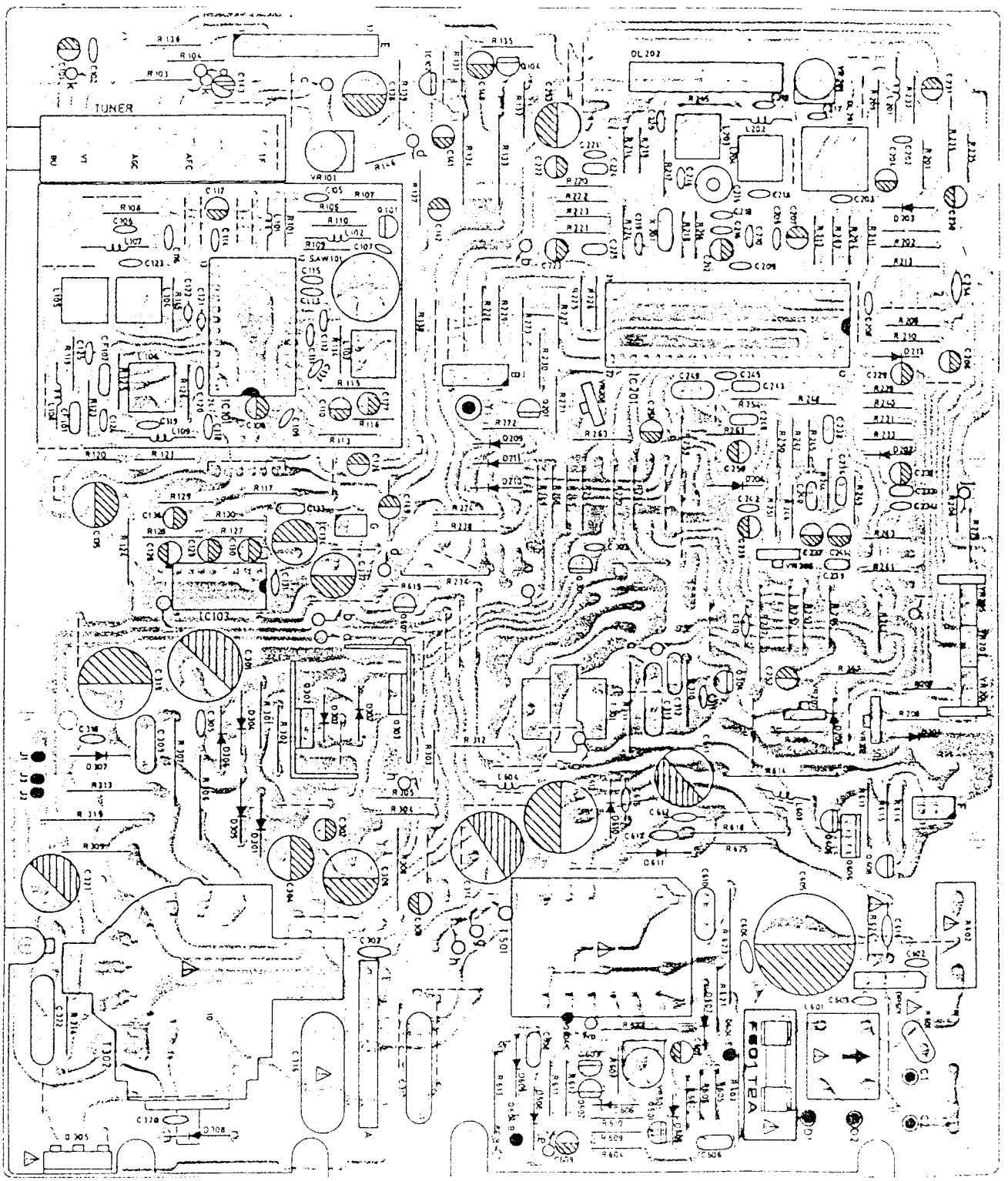


Fig.21

BOTTOM IE BOTTOM VIEW OF MAIN PCB

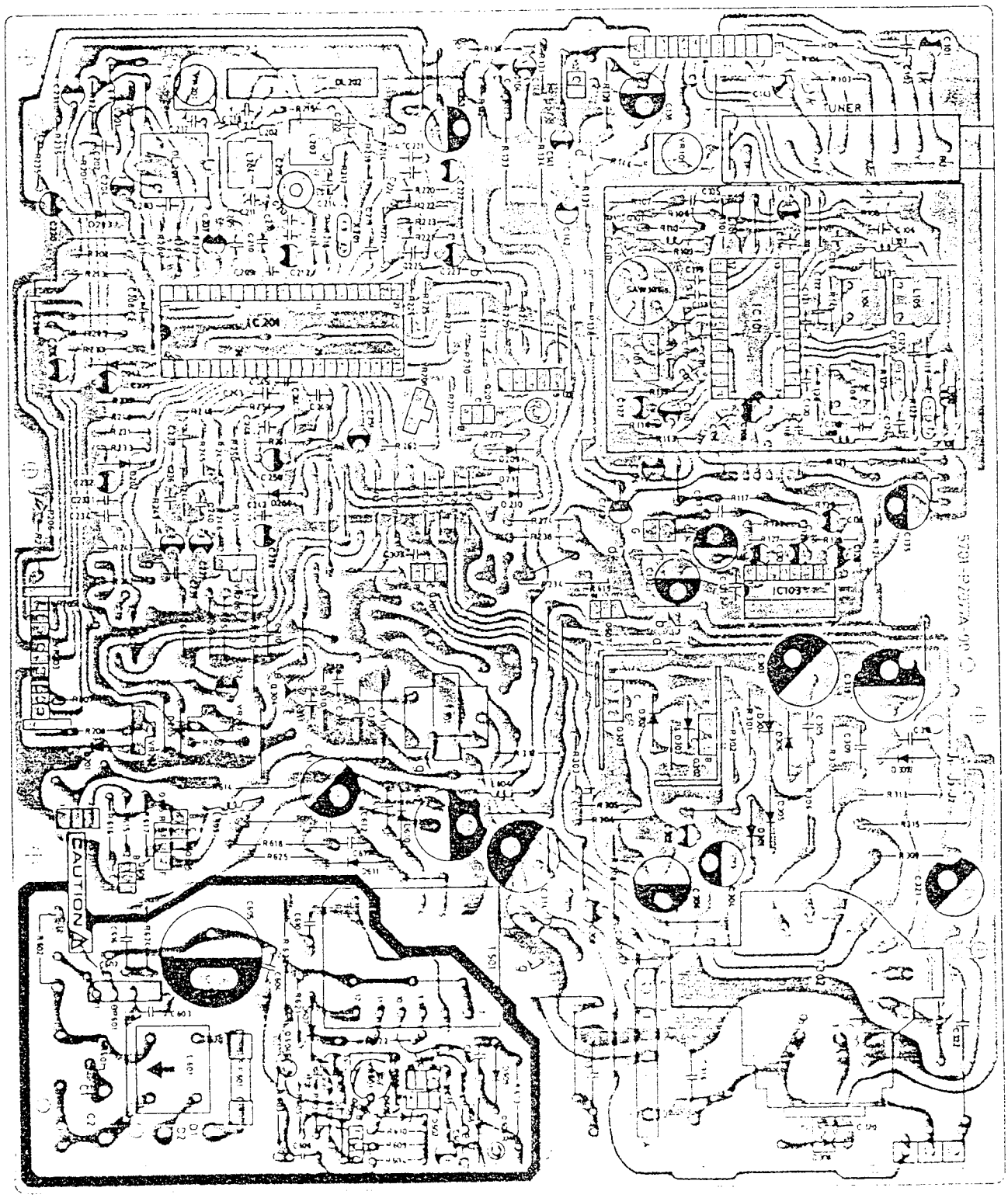
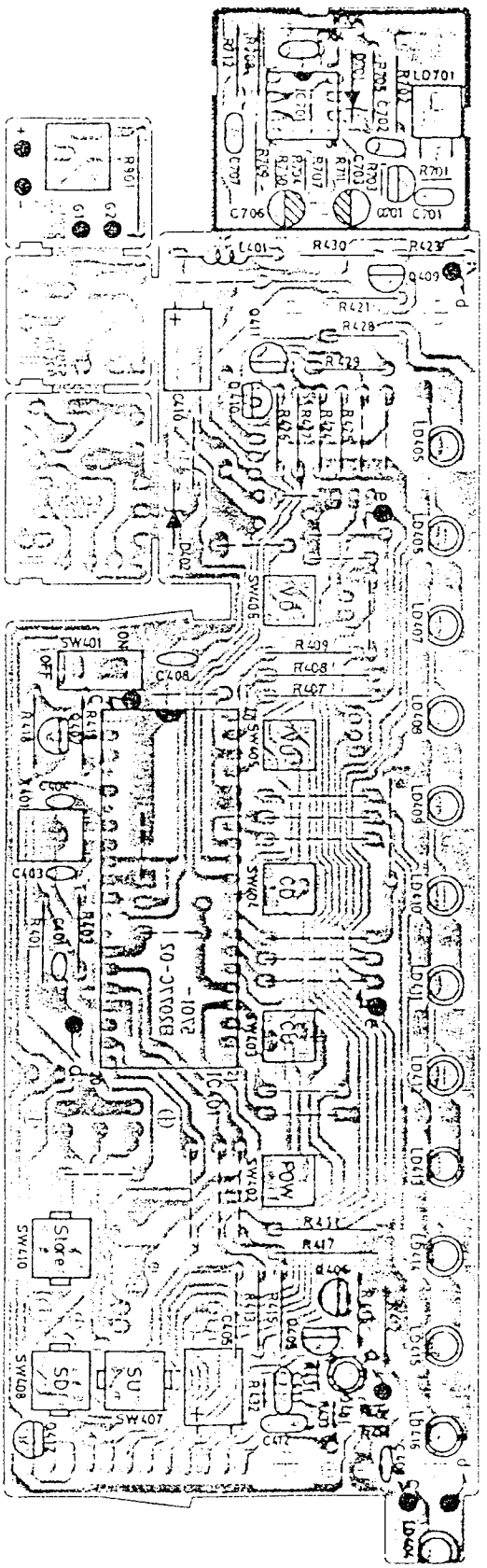
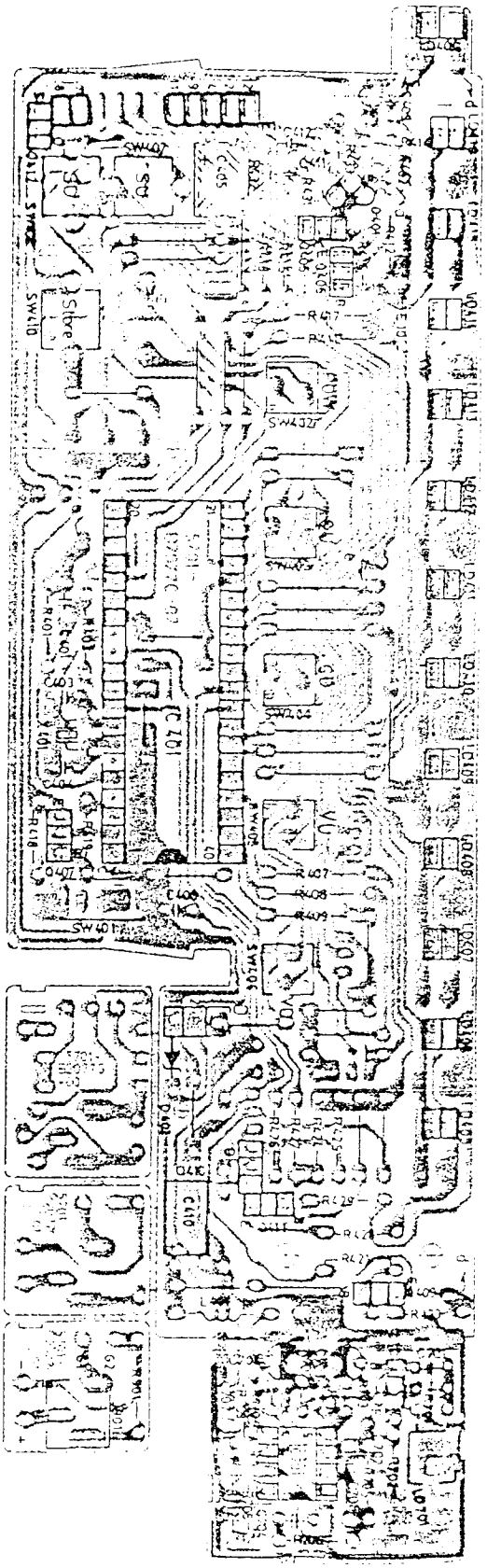


Fig 22



COMPONENT VIEW

Fig. 23



BOTTOM VIEW

Fig. 24

COMPONENT VIEW OF HAND SET PCB

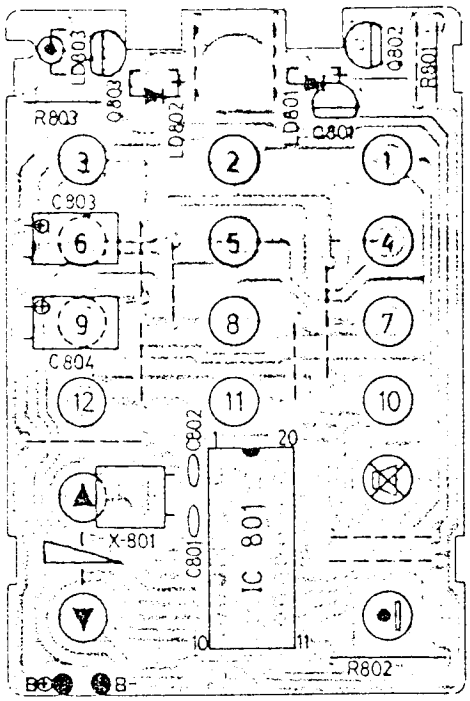


Fig.25

COMPONENT VIEW OF CRT PCB

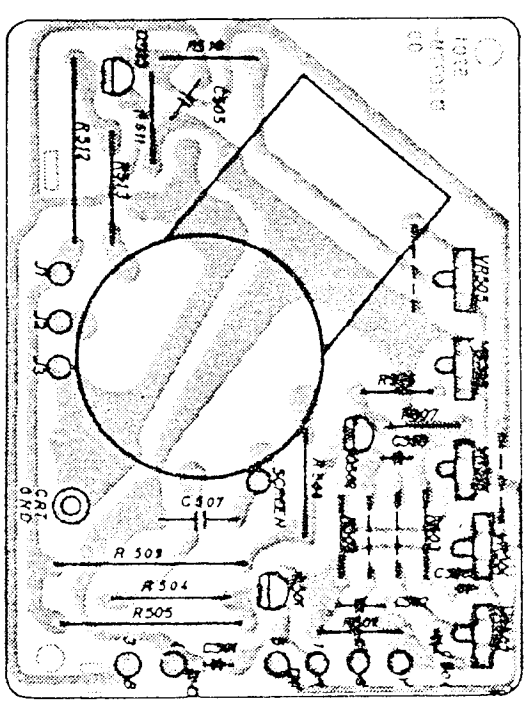


Fig 26

BOTTOM VIEW OF CRT PCB

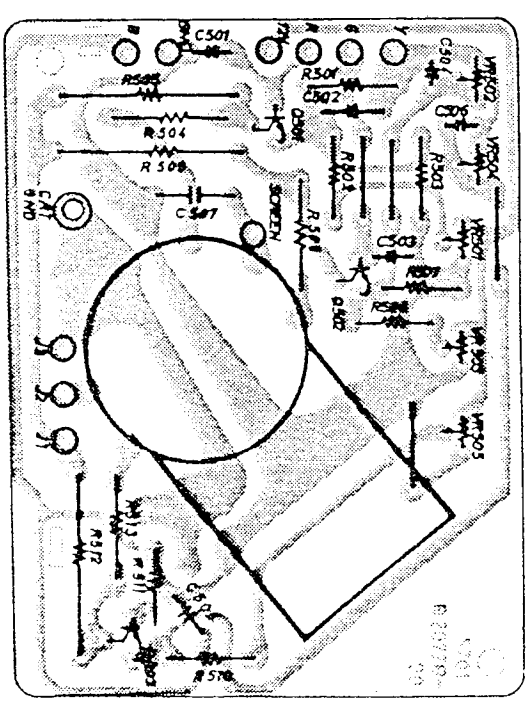


Fig 27

WARNING : BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CAUTION : The areas marks ⚠ in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

ABBREVIATIONS

Resistors:
- CF – Carbon Film Resistor
- CC - Carbon Composition Resistor
- MF – Metal Film Resistor
- MO – Metal Oxide Resistor
- FU – Fusible Resistor
- NI – Non-Inflammable Resistor
- SF – Semi-fixed Resistor

Capacitors:
- CE – Ceramic Capacitor
- PO – Polyestor Film Capacitor
- PP – Polypropylene Film Capacitor
- EL – Electrolytic Capacitor
- TC – Temperature Compensating Capacitor
- MP – Metal Polyestor Film Capacitor
- AC – AC Capacitor

Wire:
- SI – Single Jumper Wire AWG 22 (UL1007)
- STJ – Strand Jumper Wire AWG 22 (UL1007)
- ST – Strand Jumper Wire AWG 24 (UL1007)

Remark:

1) All resistors are ¼W, ±5% unless otherwise noted.
2) All capacitors are 50WV capacitor unless otherwise noted.

ELECTRICAL PART LIST

SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
R101	5403-101ADC-00	CF 100 Ω
R102		
R103	5403-563ADC-00	CF 56 KΩ
R104	5403-154ADC-00	CF 150 KΩ
R105		
R106	5403-562ADC-00	CF 5.6 KΩ
R107	5403-102ADC-00	CF 1 KΩ
R108	5403-221ADC-00	CF 220 Ω
R109	5403-821ADC-00	CF 820 Ω
R110	5403-270ADC-00	CF 27 Ω
R111		
R112		
R113	5403-824ADC-00	CF 820 KΩ
R114	5403-222ADC-00	CF 2.2 KΩ
R115	5403-222ADC-00	CF 2.2 KΩ
R116	5403-682ADC-00	CF 6.8 KΩ
R117	5403-222ADC-00	CF 2.2 KΩ
R118		
R119	5403-331ADC-00	CF 330 Ω
R120	5403-101ADC-00	CF 100 Ω
R121	5403-102ADC-00	CF 1 KΩ
R122		
R123	5403-102ADC-00	CF 1 KΩ
⚠ R124	5404-390DGC-00	MO 39 Ω ±5%
R125	5403-102ADC-00	CF 1 KΩ

SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
R126	5403-822ADC-00	CF 8.2 KΩ
R127	5403-562ADC-00	CF 5.6 KΩ
R128	5403-221ADC-00	CF 220 Ω
R129	5403-102ADC-00	CF 1 KΩ
R130	5403-010ADC-00	CF 1 Ω
R131	5405-162CDA-00	MF 1.6 KΩ ±1%
R132	5403-823ADC-00	CF 82 KΩ
R133	5404-222DHC-00	MO 2.2 KΩ ±5% 2W
R134	5404-822DHC-00	MO 8.2 KΩ ±5% 2W
R135	5405-562CDA-00	MF 5.6 KΩ ±1%
R136	5403-333ADC-00	CF 33 KΩ
R137	5403-182ADC-00	CF 1.8 KΩ
R138	5403-182ADC-00	CF 1.8 KΩ
R139	5403-221AFC-00	CF 220 Ω ½W
R140		
R141		
R142		
R143		
R199	5403-103ADC-00	CF 10 KΩ
R145	5403-222ADC-00	CF 2.2 KΩ
R146	5403-681ADC-00	CF 680 KΩ
R201	5403-821ADC-00	CF 820 Ω
R202	5403-104ADC-00	CF 100 KΩ
R203	5403-122ADC-00	CF 1.2 KΩ
R204	5403-561ADC-00	CF 560 Ω

ELECTRICAL PART LIST

SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
R205	5403-124ADC-00	CF 120 KΩ
R206	5403-682ADC-00	CF 6.8 KΩ
R207	5403-273ADC-00	CF 27 KΩ
R208	5403-562ADC-00	CF 5.6 KΩ
R209	5403-152ADC-00	CF 1.5 KΩ
R210	5403-103ADC-00	CF 10 KΩ
R211	5403-363ADC-00	CF 36 KΩ
R212	5403-334ADC-00	CF 330 KΩ
R213	5403-223ADC-00	CF 22 KΩ
R214	5403-241ADC-00	CF 240 Ω
R215	5403-152ADC-00	CF 1.5 KΩ
R216	5403-821ADC-00	CF 820 Ω
R217	5403-681ADC-00	CF 680 Ω
R218	5403-471ADC-00	CF 470 Ω
R219	5403-471ADC-00	CF 470 Ω
R220	5403-681ADC-00	CF 680 Ω
R221	5403-681ADC-00	CF 680 Ω
R222	5403-333ADC-00	CF 33 KΩ
R223	5403-333ADC-00	CF 33 KΩ
R224	5403-823ADC-00	CF 82 KΩ
R225	5403-272ADC-00	CF 2.7 KΩ
R226	5403-272ADC-00	CF 2.7 KΩ
R227	5403-272ADC-00	CF 2.7 KΩ
R228	5403-331ADC-00	CF 330 Ω
R229	5403-331ADC-00	CF 330 Ω
R230	5403-331ADC-00	CF 330 Ω
R231	5403-821ADC-00	CF 820 Ω
R232	5403-152ADC-00	CF 1.5 KΩ
R233	5403-564ADC-00	CF 560KΩ
⚠ R234	5403-680DGC-00	MO68 Ω ±5% 1W
R235	5403-103ADC-00	CF 10 KΩ
R236	5403-563ADC-00	CF 56 KΩ
⚠ R237	5404-682DHC-00	MO 6.8 KΩ ±5% 2W
⚠ R238	5405-681DFC-00	MO 680 Ω ±5% ½W
R239	5403-242ADC-00	CF 2.4 KΩ
R240	5403-333ADC-00	CF 33 KΩ
R241	5403-563ADC-00	CF 56 KΩ
R242	5403-104ADC-00	CF 100 KΩ
R243	5403-103ADC-00	CF 10 KΩ
R244	5403-681ADC-00	CF 680 Ω
R245	5403-362ADC-00	CF 3.6 KΩ
R246	5403-362ADC-00	CF 3.6 KΩ
R247	5403-363ADC-00	CF 36 KΩ
R248	5403-332ADC-00	CF 3.3 KΩ
R249	5403-820ADC-00	CF 82 Ω
R250	5405-153CD8-00	MF 15 KΩ ±2% ¼W

SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
R251	5409-154CD8-00	MF 150 KΩ ±2% ¼W
R252	5403-182ADC-00	CF 1.8 KΩ
R253	5403-101ADC-00	CF 100 Ω
R254	5403-242ADC-00	CF 2.4 KΩ
R255		
R256		
R257		
R258		
R259	5403-393ADC-00	CF 39 KΩ
R260	5403-244ADC-00	CF 240 KΩ
R261	5403-565ADC-00	CF 5.6 MΩ
R262	5403-102ADC-00	CF 1 KΩ
R263	5403-183ADC-00	CF 18 KΩ
R264	5403-272ADC-00	CF 2.7 KΩ
R265	5403-223ADC-00	CF 22 KΩ
R266	5403-273ADC-00	CF 27 KΩ
R267	5403-822AFC-00	CF 8.2 KΩ ½W
R268	5403-222ADC-00	CF 2.2 KΩ
R269	5403-102ADC-00	CF 1 KΩ
R270	5403-331ADC-00	CF 330 Ω
R271	5403-471ADC-00	CF470 Ω
R272	5403-471ADC-00	CF 470 Ω
R273	5403-680ADC-00	CF 68 Ω
R274	5403-471AFC-00	CF 470 Ω ½W
R275	5403-562ADC-00	CF 5.6 KΩ
R301	5405-821DFC-00	MO 820 Ω ±5% ½W
R302	5405-821DFC-00	MO 820 Ω ±5% ½W
R303	5403-333ADC-00	CF 33 KΩ
R304	5403-563ADC-00	CF 56 KΩ
R305	5403-243ADC-00	CF 24 KΩ
⚠ R306	5404-100EFC-00	FU 10 Ω ±5% ½W
R307	5404-100DGC-00	MO 10 Ω ±5% 1W
R308	5404-027DGC-00	MO 2.7 Ω ±5% 1W
R309	5403-184AFC-00	CF 180 KΩ ½W
R310	5403-272AFC-00	CF 2.7 KΩ ½W
⚠ R311	5404-222DIC-00	MO 2.2 KΩ ±5% 3W
R312	5403-220AFC-00	CF 22 Ω ½W
⚠ R313	5404-043EGC-00	FU 4.3 Ω ±5% 1W
⚠ R314	5403-103AFC-00	CF 10 KΩ ½W

ELECTRICAL PART LIST

SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
R315	5405-039GHD-00	NI 3.9 Ω ± 10% 2W
R401	5403-392ADC-00	CF 3.9 KΩ
R402	5403-332ADC-00	CF 3.3 KΩ
R403	5403-152ADC-00	CF 1.5 KΩ
R404		
R405		
R406		
R407	5403-822ADC-00	CF 8.2 KΩ
R408	5403-822ADC-00	CF 8.2 KΩ
R409	5403-822ADC-00	CF 8.2 KΩ
R410	5403-562ADC-00	CF 5.6 KΩ
R411	5403-103ADC-00	CF 10 KΩ
R412	5403-472ADC-00	CF 4.7 KΩ
R413	5403-102ADC-00	CF 1 KΩ
R414	5403-105ADC-00	CF 1 MΩ
R415	5403-223ADC-00	CF 22 KΩ
R416	5403-102ADC-00	CF 1 KΩ
R417	5403-562ADC-00	CF 5.6 KΩ
R418	5403-472ADC-00	CF 4.7 KΩ
R419	5403-682ADC-00	CF 6.8 KΩ
R420		
R421	5403-562ADC-00	CF 5.6 KΩ
R422		
R423	5403-221ADC-00	CF 220 Ω
R424	5403-103ADC-00	CF 10 KΩ
R425	5403-103ADC-00	CF 10 KΩ
R426	5403-153ADC-00	CF 15 KΩ
R427	5403-153ADC-00	CF 15 KΩ
R428	5403-681ADC-00	CF 680 Ω
R429	5403-681ADC-00	CF 680 Ω
R430		
R431	5403-333ADC-00	CF 33KΩ
R432	5403-563ADC-00	CF 56 KΩ
R433	5403-333ADC-00	CF 33 KΩ
R501	5403-151ADC-00	CF 150 Ω
R502	5403-152ADC-00	CF 1.5 KΩ
R503	5403-472ADC-00	CF 4.7 KΩ
R504	5406-472BFD-00	CC 4.7 KΩ ±10% ½W
⚠ R505	5404-153DHC-00	MO 15 KΩ ±5% 2W
R506	5403-152ADC-00	CF 1.5 KΩ
R507	5403-472ADC-00	CF 4.7 KΩ
R508	5406-472BFD-00	CC 4.7 KΩ ±10% ½W
⚠ R509	5404-153DHC-00	MO 15 KΩ ±5% 2W

SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
R510	5403-152ADC-00	CF 1.5 KΩ
R511	5403-472ADC-00	CF 4.7 KΩ
⚠ R512	5403-153DHC-00	MO 15 KΩ ±5% 2W
R513	5406-472BFD-00	CC 4.7 KΩ ±10% ½W
⚠ R601	5407-300KZZ-00	P.T.C. Thermistor
⚠ R602	5405-040GKD-00	NI 4 Ω ±10% 5W
⚠ R603	5405-022GHD-00	NI 2.2 Ω ±10% 2W
⚠ R604	5403-331ADC-00	CF 330 Ω
⚠ R605	5403-682ADC-00	CF 6.8 KΩ
⚠ R606	5403-182ADC-00	CF 1.8 KΩ
⚠ R607	5403-822ADC-00	CF 8.2 KΩ
⚠ R608	5403-332ADC-00	CF 3.3 KΩ
⚠ R609	5403-103ADC-00	CF 10 KΩ
⚠ R610	5403-682ADC-00	CF 6.8 KΩ
⚠ R611	5403-472ADC-00	CF 4.7 KΩ
⚠ R612	5404-120DHC-00	MO 12 Ω ±5% 2W
⚠ R613	5404-270DHC-00	MO 27 Ω ±5% 2W
⚠ R614	5404-151DGC-00	MO 150 Ω ±5% 1W
⚠ R615	5403-102ADC-00	CF 1 KΩ
⚠ R616	5405-104ADC-00	CF 100 KΩ ±5% ½W
⚠ R617	5403-272ADC-00	CF 2.7 KΩ
⚠ R618	5404-120DHC-00	MO 12 Ω ±5% 2W
⚠ R619	5403-681ADC-00	CF 680 Ω
⚠ R620	5404-003DHC-00	MO 0.33 Ω ±5% 2W
⚠ R621	5403-184AFC-00	CF 180 KΩ ½W
⚠ R622	5403-184AFC-00	CF 180 KΩ ½W
⚠ R623	5405-390GLD-00	NI 39 Ω ±10% 6W
⚠ R624	5406-565BFD-00	CC 5.6 MΩ ±10% ½W
⚠ R625	5403-104AFC-00	CF 100 KΩ ½W
⚠ R626	5406-565BFD-00	CC 5.6 MΩ ±10% ½W
R701	5403-393ADC-00	CF 39 KΩ
R702	5403-104ADC-00	CF 100 KΩ
R703	5403-105ADC-00	CF 1 MΩ
R704	5403-102ADC-00	CF 1 KΩ
R705	5403-473ADC-00	CF 47 KΩ
R706	5403-332ADC-00	CF 3.3 KΩ
R707	5403-682ADC-00	CF 6.8 KΩ
R708	5403-104ADC-00	CF 100 KΩ
R709	5403-222ADC-00	CF 2.2 KΩ
R710	5403-822ADC-00	CF 8.2KΩ
R711	5403-222ADC-00	CF 2.2 KΩ
R712	5403-222ADC-00	CF 2.2 KΩ
R801	5403-103ADC-00	CF 10 KΩ
R802	5403-562ADC-00	CF 5.6 KΩ
R803	5403-331ADC-00	CF 330 Ω
R2001	5403-101AFC-00	CF 100 Ω ½W

CAUTION

Before servicing the chassis, read the "Safety Precaution", "X-Ray Radiation Precaution" and "Product Safety Notice" on Page 2 of this manual."

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The normal value of the high voltage of this receiver is 24 KV at zero beam current (minimum brightness) under 240V AC power source. The high voltage must not, under any circumstances, exceed 28 KV.
2. Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
3. The primary source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some parts in this receiver have special safety – related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver.

The following are the necessary precautions to be observed before servicing this chassis.

1. Since the power supply circuit of this receiver is directly connected to the AC power line, an isolation transformer should be used during any dynamic service to avoid possible shock hazard.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. When replacing parts or circuit boards, disconnect the power cord.
5. When replacing a high wattage resistor (oxide metal film resistor) on circuit board, keep the resistor 10mm (1/2 in.) away from circuit board.
6. Connection wires must be kept away from components with high voltage or high temperature.
7. If any fuse in this TV receiver is blown, replace it with the FUSE specified in the chassis parts list.
8. The receiver is designed to operate with 240V (50Hz) AC mains.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-RAY RADIATION protection afforded by them cannot necessarily be obtained by using replacement components rated for higher wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements electrical components having such features are marked with "⚠" on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-RAY RADIATION or other hazards.

ELECTRICAL PART LIST

SYMBOL NO.	PART NO.	DESCRIPTION
Capacitors		
C305	5605-B681MD-00	CE 680PF 500V ±10%
C306	5601-A227EE-00	EL 220uF ±20%
C307	5607-B472MD-00	CE 0.0047uF 500V ±10%
C308	5601-A225FE-00	EL 2.2uF ±20%
C309	5615-D10331D-00	PP 0.01uF 200V ±10%
C310	5605-B102FD-00	CE 0.001uF ±10%
C311	5605-B391MD-00	CE 390PF 500V ±10%
C312	5615-D222OD-00	PP 0.0022uF 630V ±10%
C313	5615-D473ID-00	PP 0.047uF 200V ±10%
C314	5601-A107HG-00	EL 100uF 160V +50% −10%
C315		
⚠ C316	5615-E722TC-00	PP 0.0072uF 1.6KV ± 5%
C317	5615-D524ID-00	PP 0.52uF 200V ± 10%
C318	5605-B681MD-00	CE 680 PF 500V ± 10%
C319	5601-A108DE-00	EL 1000uF 25V ± 20%
C320	5605-B681MD-00	CE 680PF 500V ± 10%
C321	5601-A106KG-00	EL 10uF 250V +50% −10%
C322	5615-D563ID-00	PP 0.056uF 200V ± 10%
C401	5605-B470FC-00	CE 47PF ±5%
C402		
C403	5605-B101FC-00	CE 100PF ±5%
C404	5605-B101FC-00	CE 100PF ±5%
C405		
C406		
C407		
C408	5605-B203FH-00	CE 0.02uF +80% −20%
C409	5605-B403FH-00	CE 0.04uF +80% −20%
C410	5601-A107BE-00	EL 100uF 10V ±20%
C411	5601-C104GD-00	PO 0.1 uF 100V ± 10%

SYMBOL NO.	PART NO.	DESCRIPTION
Capacitors		
C412	5601-C104GD-00	PO 0.1 uF 100V ± 10%
C501	5605-B181FC-00	CE 180PF ±5%
C502	5605-B102FD-00	CE 0.001uF ± 10%
C503	5605-B181FC-00	CE 180PF ± 5%
C504	5605-B102FD-00	CE 0.001uF ± 10%
C505	5605-B181FC-00	CE 180PF ±5%
C506	5605-B102FD-00	CE 0.001uF ± 10%
⚠ C507	5605-B472RD-00	CE 0.0047uF 1KV ± 10%
⚠ C601		
⚠ C602	5605-B472MD-00	CE 0.0047uF 500V ± 10%
⚠ C603	5605-B472MD-00	CE 0.0047uF 500V ± 10%
⚠ C604	5605-B472RD-00	CE 0.0047uF 1KV ± 10%
⚠ C605	5603-A107LG-00	EL 100uF 400V +50% −10%
⚠ C606	5601-C333GD-00	PO 0.033uF 100V ± 10%
⚠ C607	5601-A106FE-00	EL 10uF ± 20%
⚠ C608	5601-C104GD-00	PO 0.1uF 100V ± 10%
⚠ C609	5601-A476DE-00	EL 47uF 25V ± 20%
⚠ C610	5615-E222RD-00	PP 0.0022uF 1.2KV ± 10%
⚠ C611	5601-A477DE-00	EL470uF 25V ± 20%
⚠ C612	5605-B222RD-00	CE 0.0022uF 1KV ± 10%
⚠ C613	5601-A476HG-00	EL 47uF 160V +50% −10%
⚠ C614		
⚠ C615	5605-B681MD-00	CE 680PF 500V ± 10%
⚠ C616	5605-F222XE-00	AC 0.0022uF AC400V ± 20%
⚠ C617	5605-B472RD-00	CE 0.0047uF 1KV ± 10%
C701	5601-C223GD-00	PO 0.022uF 100V ± 10%
C702	5601-C223GD-00	PO 0.022uF 100V ± 10%
C703	5601-A106CE-00	EL 10uF 16V ± 20%

ELECTRICAL PART LIST

SYMBOL NO.	PART NO.	DESCRIPTION
Capacitors		
C704	5601-C473GD-00	PO 0.047uF 100V ± 10%
C705		
C706	5601-A476BE-00	EL 47uF 10V ± 20%
C707	5601-C473GD-00	PO 0.047uF 100V ± 10%
C801	5605-B101FC-00	CE 100PF ±5%
C802	5605-B101FC-00	CE 100PF ±5%
C803	5601-A107BE-00	EL 100uF 10V ± 20%
C804	5601-A107BE-00	EL 100uF 10V ± 20%
Semiconductors		
IC101	6501-00324A-00	TA7680AP
IC102	6506-00202A-00	L 5630
IC103	6503-00516A-00	TDA1904AP
⚠ IC201	6501-00642A-00	TA7698AP
IC401	6503-00140A-00	M49081
IC701	6503-00308A-00	TDA2320A
IC801	6503-00420A-00	M708L
Q101	5101-C00304-00	2SC2717
Q102		
Q103		
Q104	5101-C00503-00	2SC2229-0
Q201	5101-A00104-00	2SA562-TMY
Q301	5101-C00503-00	2SC2229-0
Q302	5101-C00603-00	2SC2073
Q303	5101-A00203-00	2SA940
Q304	5101-C00703-00	2SC2482
⚠ Q305	5101-D00201-00	2SD1426
⚠ Q401	5106-C00103-00	BSX20
Q402	5101-A00404-00	2SA1015-Y
Q403	5101-A00404-00	2SA1015-Y

SYMBOL NO.	PART NO.	DESCRIPTION
Semiconductors		
Q404	5101-A00404-00	2SA1015-Y
Q405	5101-C00205-00	2SC1815-Y
Q406	5101-C00205-00	2SC1815-Y
Q407	5101-A00404-00	2SA1015-Y
Q408		
Q409	5101-A00404-00	2SA1015-Y
Q410	5101-A00404-00	2SA1015-Y
Q411	5101-A00404-00	2SA1015-Y
Q412	5101-E00107-00	2SK30A (FET)
⚠ Q501	5101-C00703-00	2SC2482
⚠ Q502	5101-C00703-00	2SC2482
⚠ Q503	5101-C00703-00	2SC2482
⚠ Q601	5101-C00205-00	2SC1815-Y
⚠ Q602	5104-B00103-00	2SB774-T
⚠ Q603	5101-C00205-00	2SC1815-Y
⚠ Q604	5101-D00601-00	2SD 820
⚠ Q605	5102-A00504-00	2SA1013-Y
⚠ Q606	5102-C00101-00	2SC2335
⚠ Q607	5103-D00102-00	2SD400F
⚠ Q608	5101-C00804-00	2SC2230-AY
Q701	5101-C00206-00	2SC1815-BL
Q801	5101-C00206-00	2SC1815-BL
Q802	5101-C00904-00	2SC2120-Y
Q803	5101-A00404-00	2SA1015-Y
D101		
D102		
D103		
D201	5201-05001A-00	IN4148
D202	5201-02001A-00	IS1555
D203	5201-02001A-00	IS1555
D204	5201-05001A-00	IN4148
D205	5201-02001A-00	IS1555
D206		
D208	5203-04006A-00	12V Zener (GEA 12Y)
D209	5201-02001A-00	IS1555
D210	5201-02001A-00	IS1555
D211	5201-02001A-00	IS1555
D212		
D213	5201-02001A-00	IS1555
D301	5201-01001A-00	IN4004S
D302	5201-02001A-00	IS1555
D303	5201-02001A-00	IS1555
D304	5201-02005A-00	TVR-2D
D305	5201-02005A-00	TVR-2D
D306	5201-02002A-00	S5295J

ELECTRICAL PART LIST

SYMBOL NO.	PART NO	DESCRIPTION
Semiconductors		
D307	5201-02003A-00	S5295G
D308	5201-02003A-00	S5295G
D402	5201-04001A-00	GZA5.1Y
D403	5201-05001A-00	IN4148
D404	5203-04018A-00	27V Zener
⚠ D601-D604	5203-01002A-00	D8A10G
⚠ D605	5203-04008A-00	GZA8.2Y
⚠ D606	5203-04009A-00	GZA9.1Y
⚠ D607	5201-02003A-00	S5295G
⚠ D608	5201-02003A-00	S5295G
⚠ D609	5201-02003A-00	S5295G
⚠ D610	5201-02003A-00	S5295G
⚠ D611	5201-02004A-00	IS1835
D701	5201-05001A-00	IN4148
L.E.D. LD401	6601-A00200-00	TLR124
LD 402	6601-A00200-00	TLR 124
LD403	6601-A00200-00	TLR124
LD404	6601-A00700-00	TLR114A
LD405	6601-A00800-00	TLG114A
LD406	6601-A00800-00	TLG114A
LD407	6601-A00800-00	TLG114A
LD408	6601-A00800-00	TLG114A
LD409	6601-A00800-00	TLG114A
LD410	6601-A00800-00	TLG114A
LD411	6601-A00800-00	TLG114A
LD412	6601-A00800-00	TLG114A
LD413	6601-A00800-00	TLG114A
LD414	6601-A00800-00	TLG114A
LD415	6601-A00800-00	TLG114A
LD416	6601-A00800-00	TLG114A
LD701	6601-F00100-00	TPS703
LD801	6601-E00100-00	TLN105
LD802	6601-E00100-00	TLN105
LD803	6601-A00200-00	TLR124
Coil & Transformer		
L101	5805-01001A-AA	Peaking Coil 0.56uH
L102	5805-01003A-AA	Peaking Coil 1uH
L103	5801-10001A-AA	PIF Matching Coil
L104	5801-10002A-AA	PIF DET Coil
L105	5801-10002A-AA	PIF DET Coil
L106	5801-10003A-AA	SIF DET Coil
L107	5805-01005A-AA	Peaking Coil 5.6uH
L108	5805-01008A-AA	Peaking Coil 15uH
L109	5805-01008A-AA	Peaking Coil 15uH
L201	5805-01010A-AA	Peaking Coil 33uH
L202	5805-01006A-AA	Peaking Coil 8.2uH
L203	5801-10012A-AA	Delay Line Matching Coil

SYMBOL NO.	PART NO.	DESCRIPTION
Coil & Transformer		
L204	5801-10004A-AA	Burst Cleaning Coil
L401	5805-01012A-AA	Choke Coil 100uH
⚠ L601	5807-06001A-AA	Line Filter
L402	5809-02001A-AA	Choke Coil 20uH
L603	5801-10011A-AA	Choke Coil 5uH
L604	5806-02003A-AA	Choke Coil 90uH
L901	5805-01012A-AA	Choke Coil 100uH
L902	5805-01012A-AA	Choke Coil 100uH
L903	5805-01012A-AA	Choke Coil 100uH
L109	5805-01008A-AA	Peaking Coil 15uH
⚠ L2001	5807-08001A-AA	Deguassing coil
T301	5901-04001A-AA	Horizontal Drive Transformer
⚠ T302	5902-05009A-AA	Flyback Transformer
⚠ T601	5903-06002A-AA	Switching Transformer
P. C. Boards		
PCB 001	5701-B2077A-54	Main P. C. Board
PCB 002	5701-B2077B-00	CRT P. C. Board
PCB 003	5701-B2077C-00	Control P. C. Board
PCB 004	5701-B2077D-00	Earphone P. C. Board
PCB 005	5701-A2077E-00	Transmitter P. C. Board
Switches		
SW 401	6106-010201-AA	1P2T AFC Switch
SW 402	6103-010101-AA	Conductive Rubber Key Switch
SW 403	6103-010101-AA	Conductive Rubber Key Switch
SW 404	6103-010101-AA	Conductive Rubber Key Switch
SW 405	6103-010101-AA	Conductive Rubber Key Switch
SW 406	6103-010101-AA	Conductive Rubber-Key Switch
SW 407	6107-010102-AA	Single Key Push Switch
SW 408	6107-010102-AA	Single Key Push Switch

ELECTRICAL PART LIST

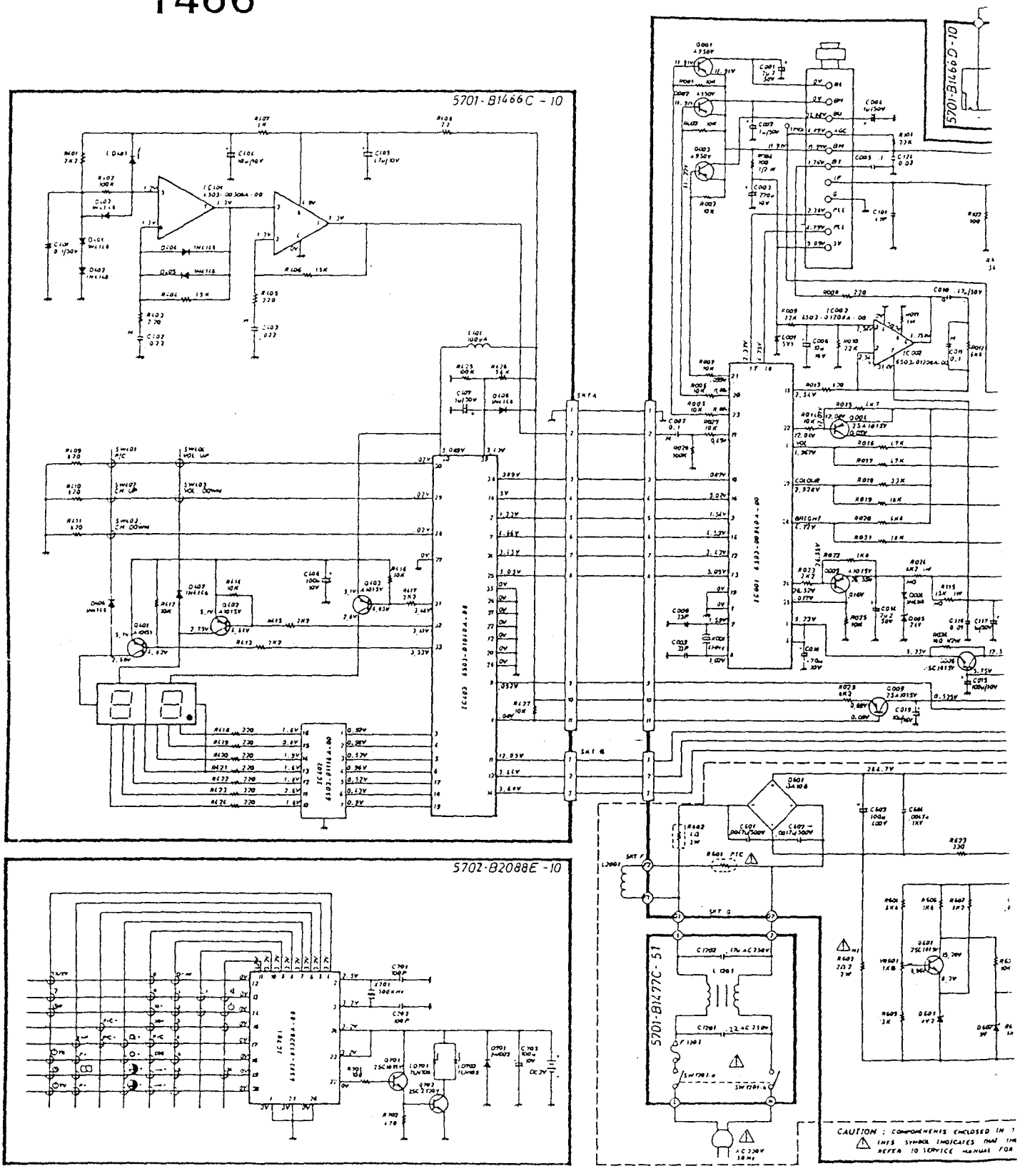
SYMBOL NO.	PART NO.	DESCRIPTION
Switch		
SW 409		
SW 410	6107-010102-AA	Single Key Push Switch
SW 1101		
⚠ SW 2001	6114-020203-1A	Power Switch
Connectors & Connector Assemblies		
Socket A	6003-01006A-00	SMK-6 Pins Wafer
Socket C_1	6005-01001F-00	Taiko-Connector Pin (1 Pin)
Socket C_2	6005-01001F-00	Taiko-Connector Pin (1 Pin)
Socket D_1	6005-01001F-00	Taiko-Connector Pin (1 Pin)
Socket D_2	6005-01001F-00	Taiko-Connector Pin (1 Pin)
Socket G	6005-01002A-00	Taiko-2 Pins Wafer
Socket Y	6003-01001A-00	SMK-1 Pin Wafer
CRT Ground	6005-01001F-00	Taiko-Connector Pin (1 Pin)
⚠ CRT Socket	7201-060018-00	Picture Tube Socket
Ass'y B	7405-001600-00	Taiko Connector (5 Pins)
Ass'y D_1	7405-000300-00	Taiko-Connector (1 Pin)
Ass'y D_2	7405-000400-00	Taiko Connector (1 Pin)
Ass'y E	7405-000500-00	Taiko Connector (12 Pins)
Ass'y F	7405-000600-00	Taiko Connector (3 pins)
Ass'y G	7405-000700-00	Taiko Connector (2 Pins)
Ass'y Y	7402-000300-01	SMK Connector (1 pin)
CRT Ground	7405-000200-01	Taiko Connector (1 pin)
Wires		
W001	6900-BM5000-IA	SI 50mm Black
W002	6900-BM5000-IA	SI 50mm Black
W003	6900-BM5000-IA	SI 50mm Black
W004	6900-BM5000-IA	SI 50mm Black
W005	6900-BM5000-IA	SI 50mm Black
W006	6900-BM1419-IA	SI 140mm White

SYMBOL NO.	PART NO.	DESCRIPTION
Wires		
W007	6900-BM1210-IA	SI 120mm Black
W008	6900-BM1116-IA	SI 110mm Blue
W009	6900-BM8000-IA	SI 80mm Blue
W010	6900-CM1310-IB	STJ 130mm Black
W011	6900-C07001-IA	ST 70mm Brown (Q305-B)
W012	6900-C06000-IA	ST 60mm Black (Q305-E)
W013	6900-LM7002-IA	STJ (UL1015) 70mm Red (Q305-C)
W014	6900-BM6000-1A	SI 60mm Black
W401	6900-BM9009-IA	SI 90mm White
W402		
W403	6900-BM1610-IA	SI 160mm Black
W404	6900-BM2114-IA	SI 210mm Yellow
W405	6900-BM9009-IA	SI 90mm White
W501	6900-C02812-1A	ST 280mm Red (J1)
W502	6900-C02814-1A	ST 280mm Yellow (J2)
W503	6900-C02810-1A	ST 280mm Black (J3)
W801	6900-C04002-IA	ST 40mm Red (+)
W802	6900-C04000-IA	ST 40mm Black (–)
W901	6900-C01314-1A	ST 130 mm Yellow (Sp +)
W902	6900-C01210-IA	ST120mmBlack (Sp –)
Miscellaneous		
X201	6301-4434AA-00	Crystal 4.43 MHz
X401	6301-4553CA-00	Ceramic Resonator 455 KHz
X801	6301-4553CA-00	Ceramic Resonator 455 KHz
CF 101	6301-6004CB-00	Ceramic Filter 6 MHz
CF 102	6301-6004CB-01	Ceramic Filter 6 MHz
U101	6401-040201-00	Tuner I System
SAW 101	6708-010600-00	Saw Filter F1035
DL 201	5801-07001A-AA	Y-Delay Line
DL 202	6703-030100-00	Ultrasonic Delay Line
⚠ F 1201	7102-200001-00	Fuse T2A
	7203-07001A-00	Fuse Holder
⚠	6900-AD2220-00	AC Line Cord BS6500 2.2 M ⚠

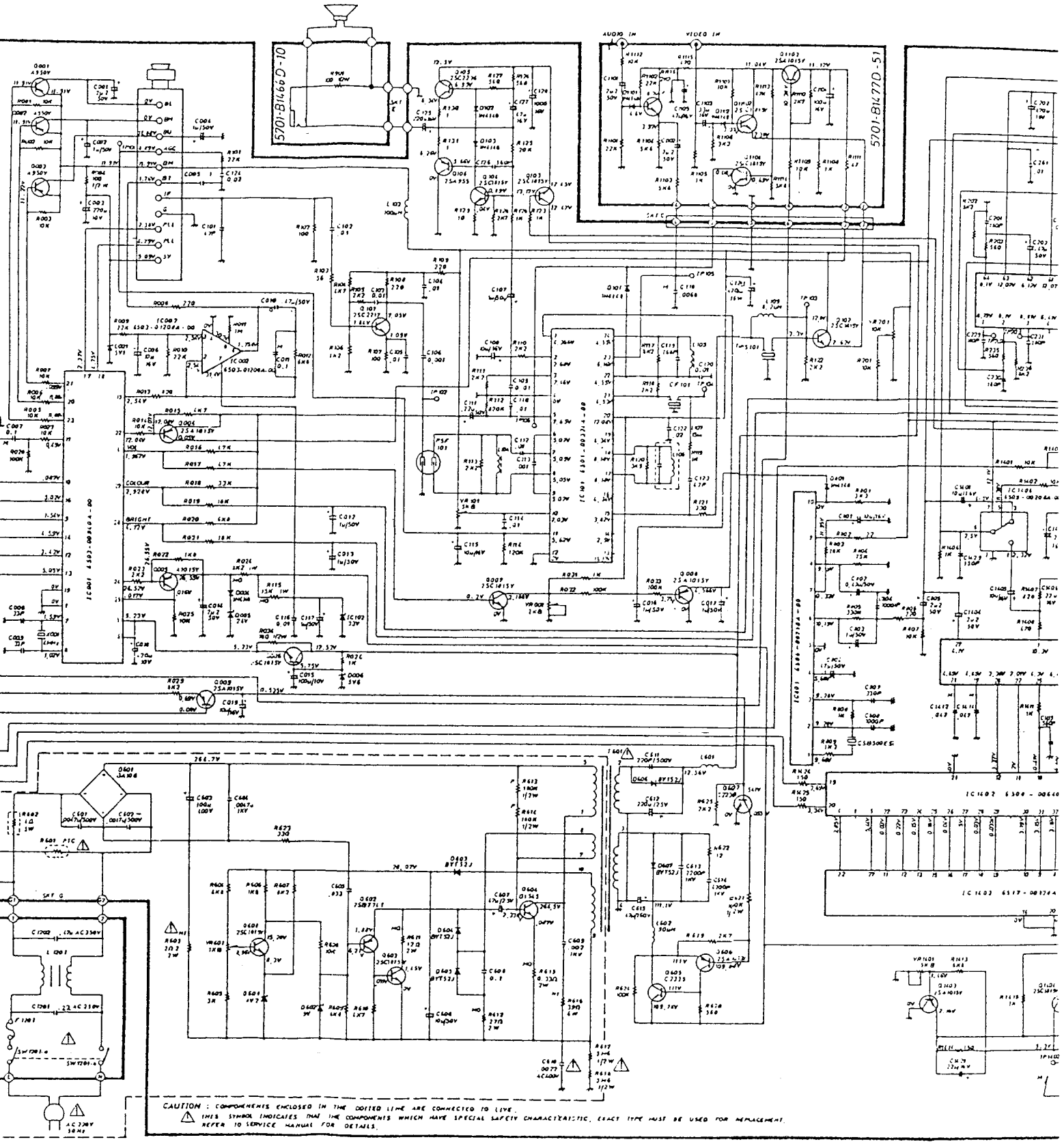
SYMBOL NO.	PART NO.	DESCRIPTION
Miscellaneous		
SP 901	6202-01007A-00	Lound Speaker 8 ohm 2¾" 1W
EJ901	7201-02002F-00	Earphone Jack
⚠ CRT	7003-37106A-AA	Colour Picture Tube (A34JAN40 X02)

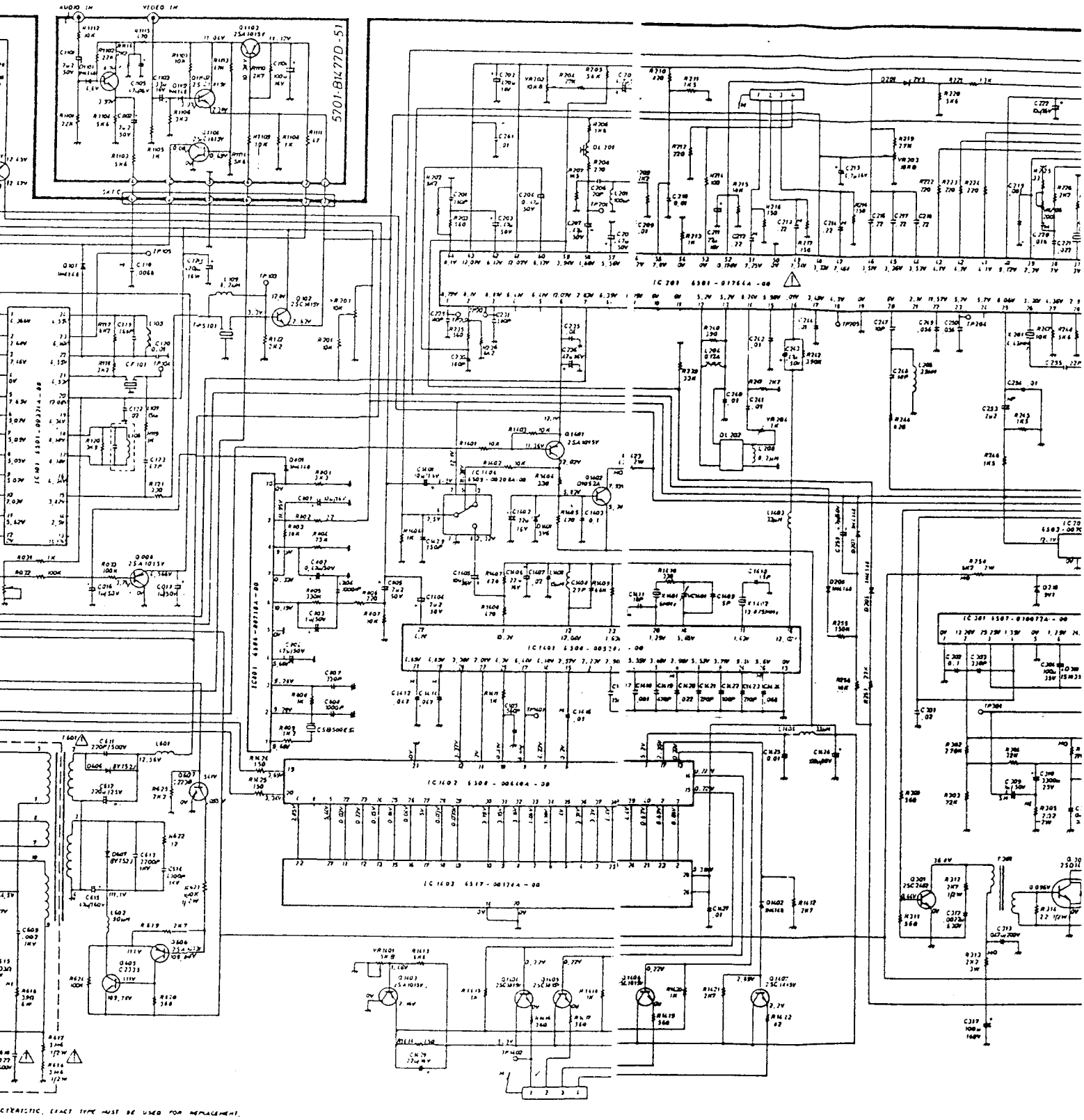
SYMBOL NO.	PART NO.	DESCRIPTION

CTV- 1422 1466 IRT



TELETEXT


5701-B1466D-10
5701-B1477D-51
AUDIO IN
VIDEO IN
CAUTION : COMPONENTS ENCLOSED IN THE DOTTED LINE ARE CONNECTED TO LIVE.
⚠ THIS SYMBOL INDICATES THAT THE COMPONENTS WHICH HAVE SPECIAL SAFETY CHARACTERISTIC. EXACT TYPE MUST BE USED FOR REPLACEMENT.
REFER TO SERVICE MANUAL FOR DETAILS.



CTERISTIC. EXACT TYPE MUST BE USED FOR REPLACEMENT.

OPERATING CONTROLS

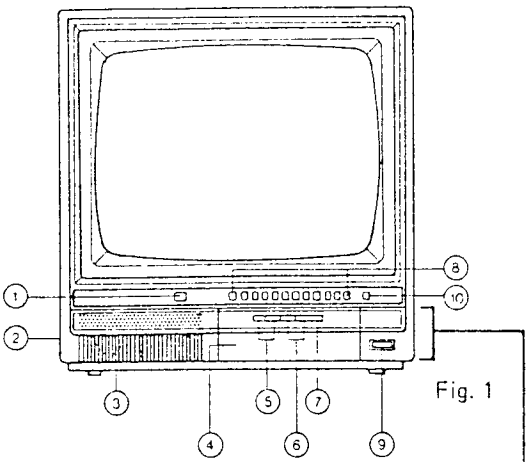


Fig. 1

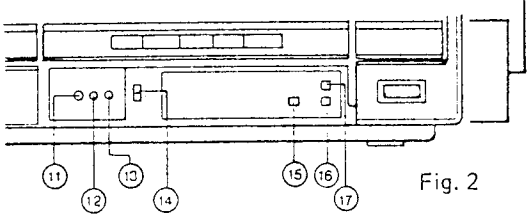


Fig. 2

1. Infrared Remote Sensor
2. Earphone Jack
3. Speaker
4. Channel Preset Door
5. Volume Control Buttons (UP/DOWN)
6. Channel Selector Buttons (UP/DOWN)
7. Power ON/OFF Button
8. Channel Indicator
9. Main Switch
10. Stand-By Indicator
11. Brightness Control
12. Contrast Control
13. Colour Control
14. AFC Switch
15. Store Key
16. Search Down Key
17. Search Up Key
18. Indoor Antenna
19. Antenna Plug (300 Ω – 75 Ω)
20. Antenna Terminal (75 Ω)
21. AC Mains Lead

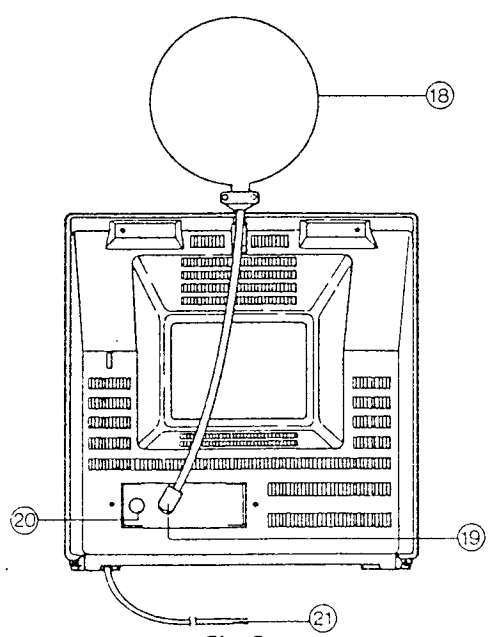


Fig. 3

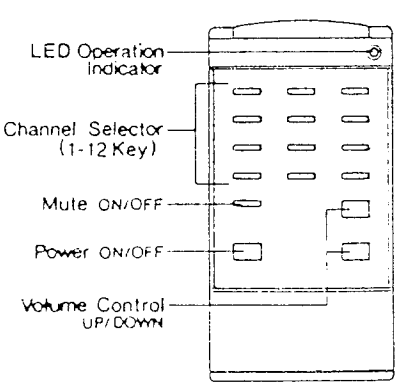


Fig. 4

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CABINET BACK REMOVAL (See Figure 5)

1. Disconnect the antenna leads from the antenna terminals.
2. Remove 4 screws securing the Cabinet Back to the Cabinet Front and detach the cabinet back.

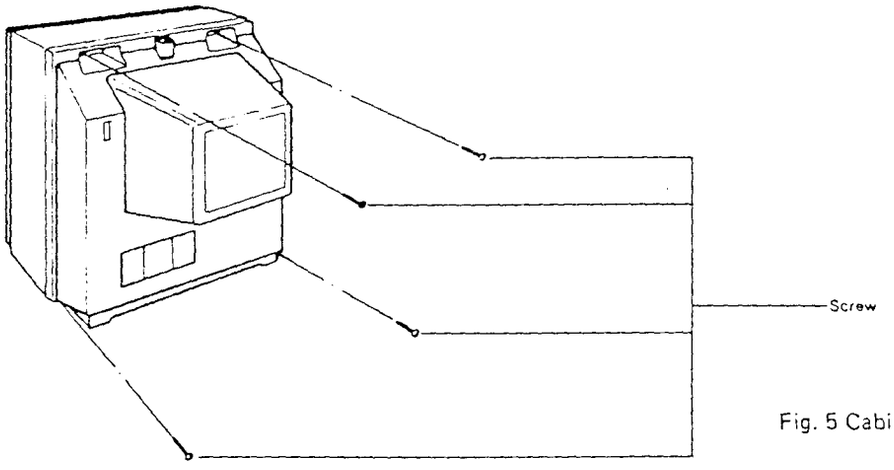


Fig. 5 Cabinet Back Removal

CHASSIS REMOVAL (See Figure 6)

Following the steps under Cabinet Back Removal, proceed as follows:–

1. Unplug the CRT grounding wire socket connected to the CRT Socket Board.
2. Detach the picture tube anode cap.

Notice : Certainly dischange the high potential of the picture tube anode to the receiver chassis before removing the anode cap.

3. Detach the CRT Socket (CRT Socket Board).
4. Remove 2 screws securing the Control Board to the Cabinet Front.
5. Take out the chassis from the chassis holder.

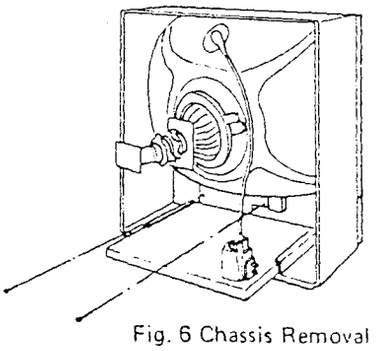


Fig. 6 Chassis Removal

PICTURE TUBE REMOVAL (See Figure 7)

Following the steps under CHASSIS REMOVAL proceed as follows:

1. Place the cabinet with the front down on a rolled pad or some suitable cushion placed near the top edge of the front panel.
2. Remove 4 screws securing the picture tube to the cabinet, and detach the CRT with the degaussing coil, then grasp the face plate edge of the picture tube with both hands and take out the picture tube.
3. Detach the CRT grounding wire which is attached to the picture tube lugs with spring.

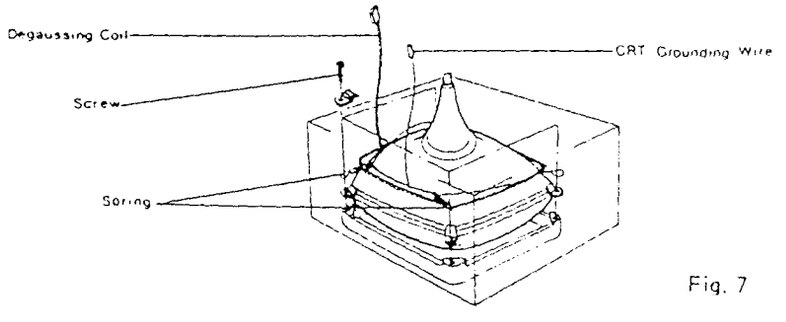


Fig. 7

GENERAL ADJUSTMENT INSTRUCTION

This receiver is transistorized and special care should be taken when servicing. Read the following matters that demand special attention before attempting adjustment.

1. Adjustment requires an exact procedure and should be undertaken only when necessary.
2. An isolation transformer should be used during any dynamic service to avoid possible shock hazard.
3. The test equipment specified or its equivalent is required to perform the alignment properly. Use of equipment which does not meet these requirements may result in improper alignment.
4. Correct matching of the equipment is essential. Failure to use proper matching will result in responses which can not represent the ture operation of the receiver.
5. Do not attempt to connect or disconnect any wire while the receiver is in operation. Make sure the power cord is disconnected before replacing parts in the receiver.
6. Switch on the TV receiver and set AFC switch at "OFF" position. Adjust the controls for optimum picture and then set AFC switch at "ON" position.
7. Unless otherwise noted, do not perform any adjustment until the receiver has been turned on for at least 10 minutes.

I. Picture and Sound I.F. Adjustment

Test Equipment:

1. AM/FM signal generator (4.5MHz—6.5MHz)
2. Sweep/Marker signal operator (30MHz—60MHz)
3. Sync. oscilloscople.
4. Oscilloscople (volt sensitivity over 10mV and input impedance over 1 M ohm, below 10PF).
5. Probe (Low capacitance)
6. High impedance electronic voltmeter on VTVM (Input impedance having 100K ohm/V at least.
7. DC power supply (Source such as a battery or a well regulated and isolated DC bias supply).

(A) Picture I.F. and AFC Adjustment:

(a). P.I.F. Alignment

(1). Connect the signal output of sweep/marker generator in series to Tp on tuner through 1K ohm resistor and 1000 pf capacitor (See Figure 8).

(2). Connect the vertical input terminal of an sync oscilloscople in series with a 100K ohm resistor to TP 10 (IC201—pin39).

(3). Apply a + 16V DC across C319 on Main Board.

(4). Apply a + 8.8V DC dummy AGC bias in series to TP12 (pin 5 of IC101) through 500 ohm resistor.

(5). Tune L103 and L104 alternatively to obtain a waveform as shown in Fig. 9.

(b). AFC Alignment

(1). Carry out AFC adjustment after PIF adjustment in made.

(2). Reconnect the vertical input of the sync oscilloscope with 1M ohm resistor in series to TP13 (pin 13 of IC101).

(3). Set AFC Switch to OFF position.

(4). Adjust L105 for the AFC waveform as shown in Fig. 10.

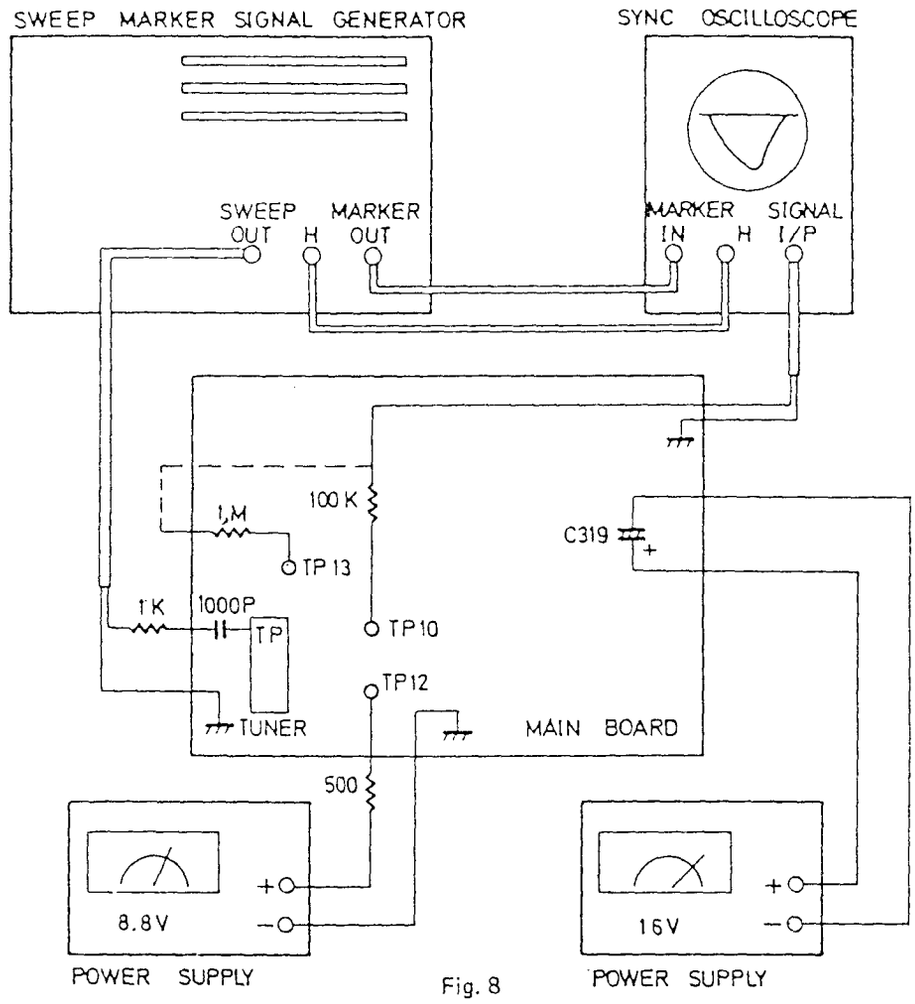


Fig. 8

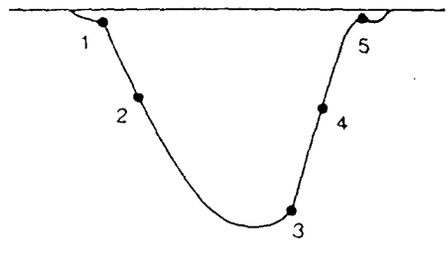


Fig. 9 P.I.F. Response Curve

P. I. F. RESPONSE

NO.	f	dB
1	33.5 MHz	−20 −26
2	35.07 MHz	−6 ±1
3	38.5 MHz	0
4	39.5 MHz	−6 ±1
5	41.5 MHz	> −40

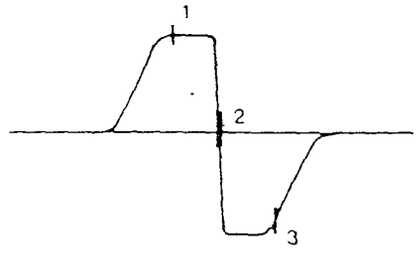


Fig. 10 AFC Response Curve

AFC RESPONSE

NO.	f	dB
1	38.5 MHz	+
2	39.5 MHz	0
3	41.5 MHz	−

(B) S.I.F. Alignment

(1). The signal at AM/FM signal generator which is set at SIF Frequency (6 MHz for I system) with AF 400Hz, 30% FM modulation is applied to TP1 through a 1K ohm resistor and a 1000pf capacitor. As shown in figure 11.

(2). Short pin 5 of IC101 to ground.

(3). Connect a 30K ohm VR to pin 1 of IC101.

(4). Connect a 16 ohm dummy load across socket G pin 1,2 in parallel with an oscilloscope and VTVM.

(5). Apply a + 16V DC across C319 and +12V DC across C611 on Main board.

(6). Adjust the 30K ohm VR for maximum undistorted output.

(7). Fine adjust L106 to obtain a maximum amplitude signal output with minimum distortion.

(8). Check the audio output level with 1W (4V) at maximum volume position.

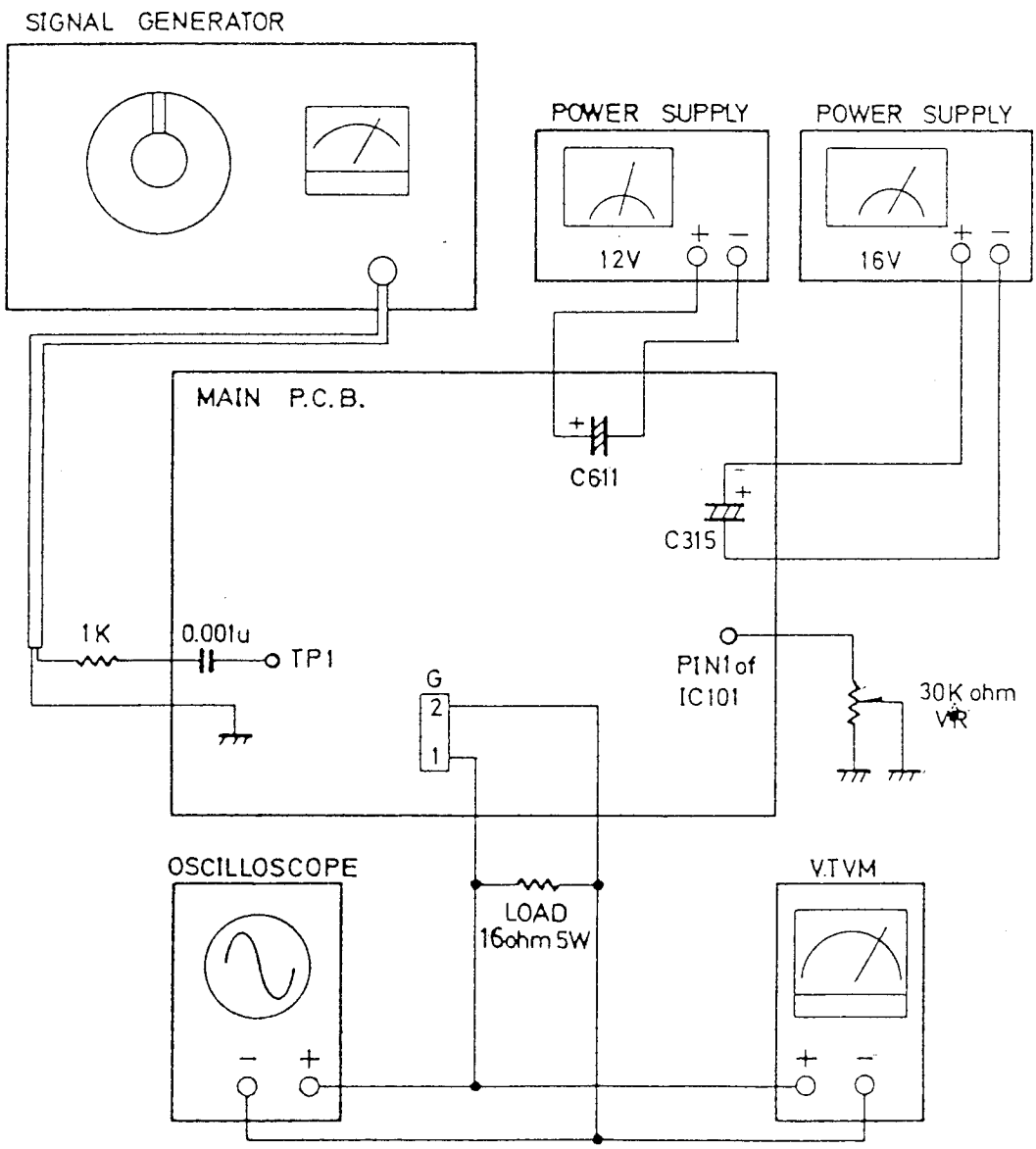


Fig. 11

II. General Adjustment

1. Automatic Degaussing

An automatic degaussing coil is attached around the picture tube, degaussing the tube properly in about one second after the set is switched on. If the receiver is moved or faced in a different direction, the power must be switched off at least 15 minutes in order that the automatic degaussing circuit operates properly. External degaussing is necessary if the automatic degaussing proves ineffective after the set is moved.

External degaussing is done by moving a degaussing coil circlewise in front of the face plate and then moving it away step by step until it is about two meters from the screen, then switch off the degaussing coil. If residual colour spots are still found on the screen, adjust the colour purity and convergence.

2. B+ (110V) adjustment

CAUTION: To avoid X-ray hazards, B+ voltage must be set correctly at 110V position.

(a). Make sure the AC power supply is 240V, 50Hz.

(b). Switch on the TV receiver, tune in an active channel.

(c). Connect test point TP11 on the main PCB (5701-B2077A-00) to a reliable DC voltmeter.

(d). Adjust VR601 on main PCB (5701-B2077A-00) for B+ 110V voltage reading.

3. High Voltage Check

CAUTION: There is no high voltage adjustment in this chassis, B+ 110V voltage directly relates to the high voltage, it must be properly adjusted to insure the correct high voltage. The high voltage does not exceed 28KV under any conditions.

(a). Connect an accurate high voltage meter to the second anode cap of the picture tube.

(b). Turn on the receiver, set Brightness and Contrast controls to minimum. (Zerobeam current)

(c). Make sure the high voltage does not exceed 28KV.

(d). No matter whether the luminance, contrast and chrominance controls are set to maximum or minimum , the high voltage must be kept under 28KV.

4. Horizontal Oscillator Adjustment

If the picture shows an unstable sync. in horizontal, adjust the VR 206 semi-variable resistor, setting it at the center of holding range.

5. Vertical Oscillator Adjustment

If the picture moves up or down on the screen, adjust the VR207 until there is a single image without vertical movement.

6. Height Adjustment

Vertical Height Control (VR208) can change the size of the picture. Make fine adjustment until the picture overscans the mask 2mm.

7. Focusing

Receive a TV test pattern signal, adjust controls for optimum picture, Adjust Focus Control for a well-defined, sharpest display in the centre area of the screen.

8. Delay AGC Adjustment

(a). Tune the set in the strongest station in your area.

(b). Turn AGC Delay control (VR101) on Main Board to fully counterclockwise position.

(c). Adjust VR101 clockwise until noise (snow) disappears from the screen.

9. Sub-Brightness Adjustment

(a). Tune in Philips Standard Colour pattern signal.

(b). Set the Contrast, Brightness and Colour Controls to the minimum.

(c). Set the Sub-Brightness Control (VR202) to the center and warm up the set for 5 minutes.

(d). Adjust Sub-Brightness Control (VR202) until light just appears on the screen.

CIRCUIT DIAGRAM

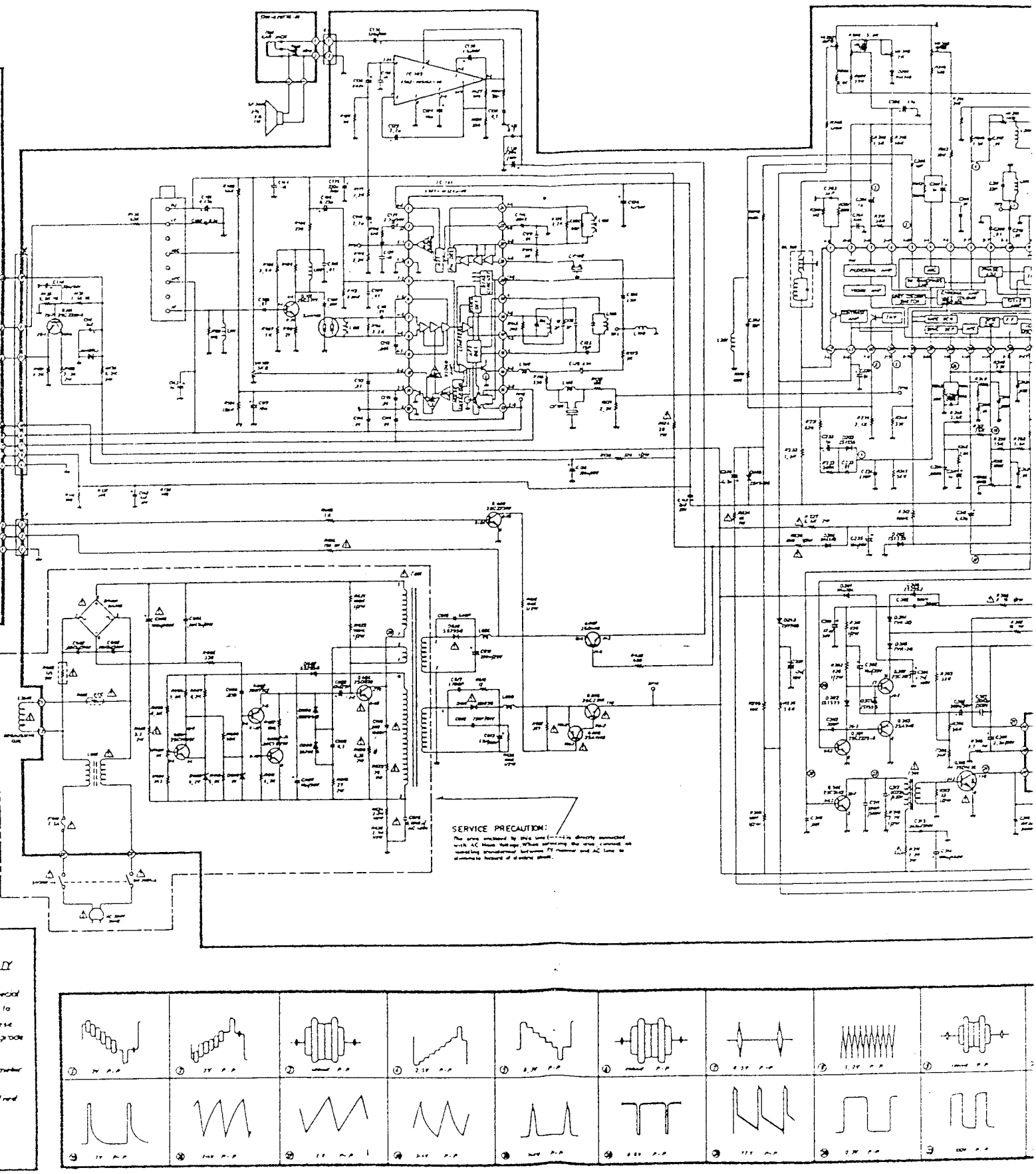
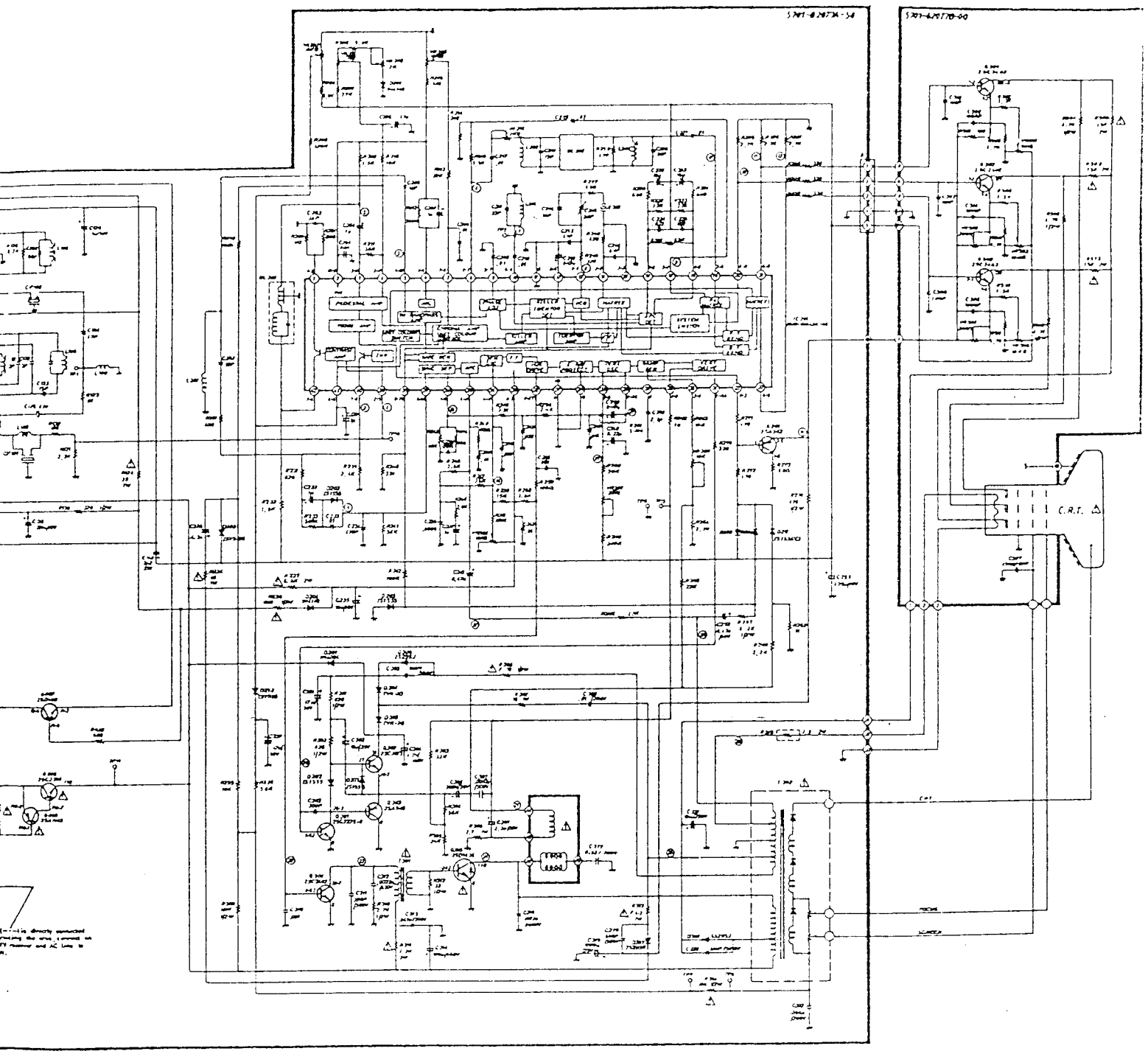
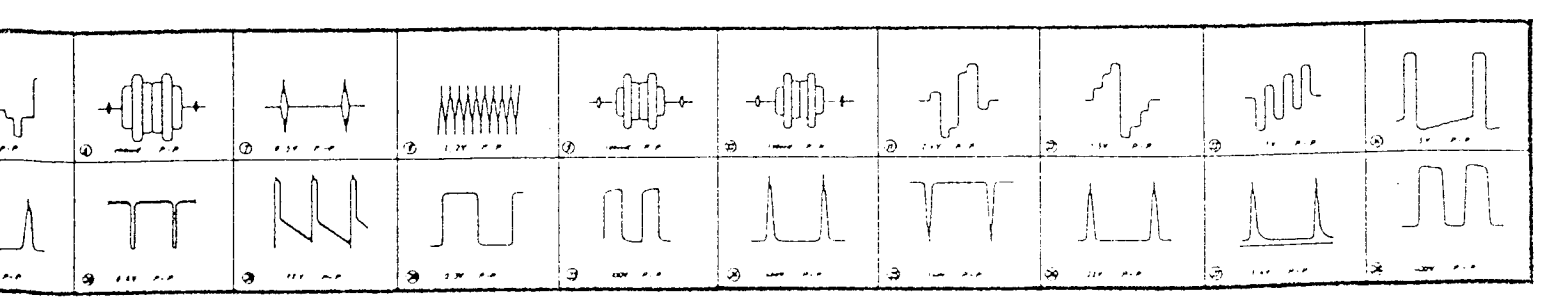


Fig.19

T DIAGRAM





ig.19

ELECTRICAL PART LIST

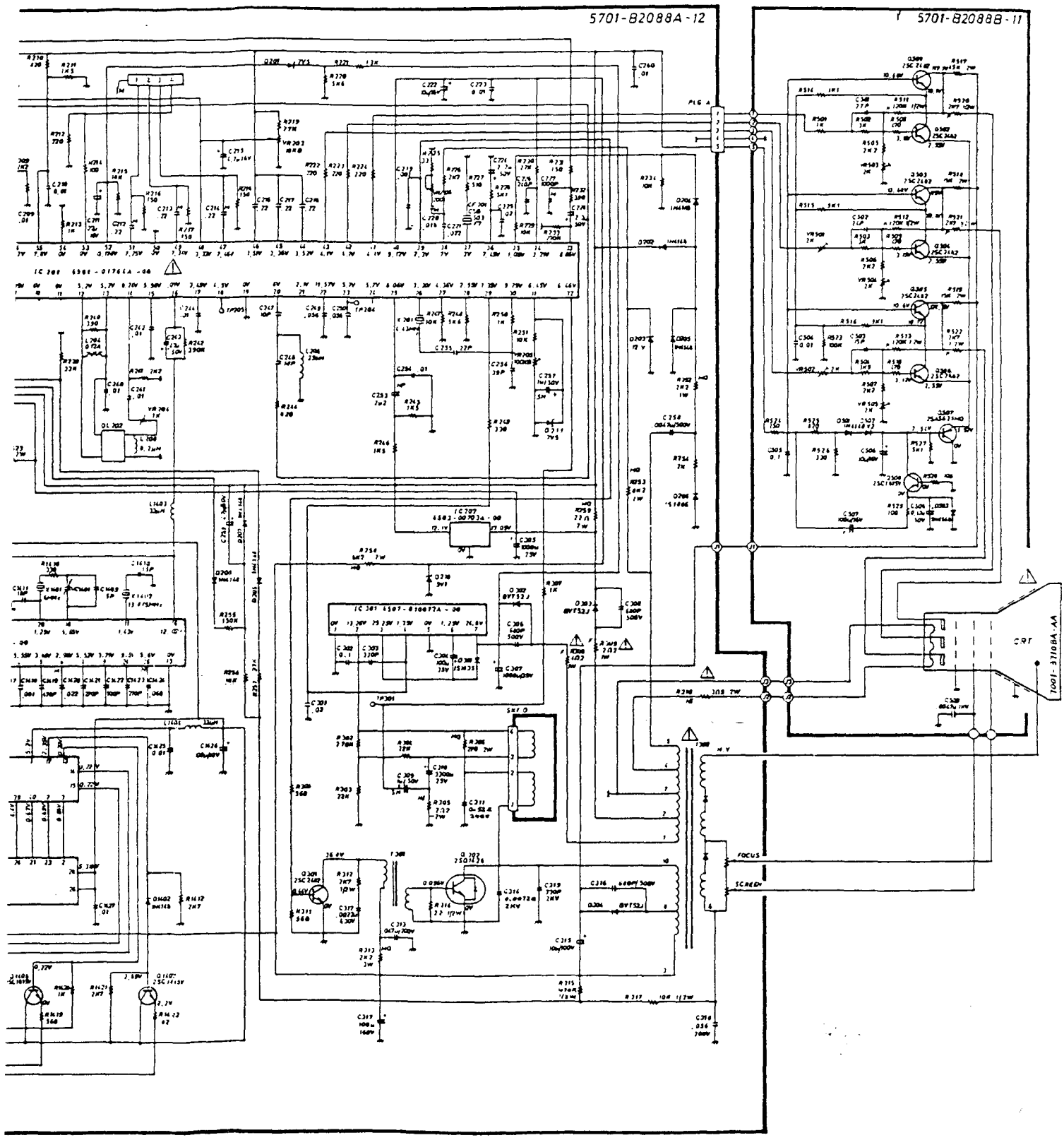
SYMBOL NO.	PART NO.	DESCRIPTION
Resistors		
Variable Resistor		
VR101	5301-503028-00	SF 5KB (AGC)
VR201	5301-103028-00	SF 1KB (Colour Matrix)
VR202	5302-20305A-00	SF 2KB (Sub-Brightness)
VR203 ~ VR205	6702-020100-00	10KB + 10KB + 1KB (Colour + Contrast +Brightness)
VR206	5302-10405A-00	SF 10KB (H—Hold)
VR207	5302-20505A-00	SF 200KB (V—Hold)
VR208	5302-10405A-00	SF 10KB (V—Height)
VR501	5301-10402A-00	SF 10KB (R—Cut off)
VR502	5301-20202A-00	SF 200B (G—Drive)
VR503	5301-10402A-00	SF 10KB (G—Cut off)
VR504	5301-20202A-00	SF 200B (B—Drive)
VR505	5301-10402A-00	SF 10KB (B—Cut off)
⚠ VR601	5301-10302B-00	SF 1KB (B+ Adjustment)
Capacitors		
C101	5601-A474FE-00	EL 0.47 uF ±20%
C102	5601-B104FH-00	CE 0.1 uF +80% −20%
C103		
C104		
C105	5605-B103FH-00	CE 0.01 uF +80% −20%
C106	5605-B103FH-00	CE 0.01 uF +80% −20%
C107	5605-B102FD-00	CE 0.001uF ±10%
C108	5601-A224FE-00	EL 0.22 uF ±20%
C109	5605-B103FH-00	CE 0.01 uF +80% −20%
C110	5601-A225FE-00	EL 2.2 uF ±20%

SYMBOL NO.	PART NO.	DESCRIPTION
Capacitors		
C111	5605-B103FH-00	CF 0.01 uF +80% −20%
C112	5605-B102FD-00	EL 0.001uF±10%
C113	5605-B103FH-00	CE 0.01uF +80% −20%
C114	5605-B103FH-00	CE 0.01uF +80% −20%
C115	5605-B103FH-00	CE 0.01uF +80% −20%
C116	5605-B103FH-00	CE 0.01uF +80% −20%
C117	5601-A106CE-00	EL 10uF 16V ±20%
C118	5601-C472GD-00	PO 0.0047uF 100V ±10%
C119	5605-B103FH-00	CE 0.01uF +80% −20%
C120	5610-J680FC-00	TC 68PF ±5%
C121	5605-B020FA-00	CE 2PF ±0.25PF
C122	5605-B020FA-00	CE 2PF ±0.25PF
C123	5605-B150FC-00	CE 15PF ±5%
C124	5605-B470FC-00	CE 47PF ±5%
C125	5605-B470FC-00	CE47PF ±5%
C126	5601-A105FE-00	EL 1uF ±20%
C127	5601-A225FE-00	EL 2.2uF ±20%
C128	5601-A106CE-00	EL 10uF 16V ±20%
C129	5601-A225FE-00	EL 2.2uF ±20%
C130	5601-A476CE-00	EL 47uF 16V ±20%
C131	5605-B104FH-00	CE 0.1uF +80% −20%
C132	5601-A108CE-00	EL 1000uF16V ±20%
C133	5601-C104GD-00	PO 0.1uF 100V ±10%
C134	5601-A227CE-00	EL 220uF 16V ±20%
C135	5601-A337CE-00	EL 330uF 16V ±20%
C136	5601-A224FE-00	EL 0.22uF ±20%
C137	5605-B103FH-00	CE 0.01uF +80% −20%
C138	5601-A337CE-00	EL 330uF 16V ±20%
C139		

ELECTRICAL PART LIST

SYMBOL NO.	PART NO.	DESCRIPTION
Capacitors		
C140		
C141	5601-A225FE-00	EL 2.2uF ±20%
C142	5601-A475FE-00	EL 4.7uF ±20%
C143	5601-A105FE-00	EL 1uF ± 20%
C144	5605-B103FH-00	CE 0.01uF +80% 20%
C145		
C146		
C147		
C148	5601-A226FE-AA	EL 22uF ±20%
C149	5601-A225DE-00	EL 2.2uF ±20%
C150	5605-B203FH-00	CE 0.02 uF
C202	5605-B150FC-00	CE 15PF ±5%
C203	5605-B390FC-00	CE 39PF ±5%
C204	5601-A105FE-00	EL 1uF ±20%
C205	5605-B100FC-00	CE 10PF ±5%
C206	5601-A476CE-00	EL 47uF 16V ±20%
C207	5601-A105FE-00	EL 1uF ± 20%
C208	5605-B103FH-00	CE 0.01uF +80% −20%
C209	5605-B103FH-00	CE 0.01uF +80% −20%
C210	5605-B103FH-00	CE 0.01uF +80% −20%
C211	5605-B330FC-00	CE 33PF ±5%
C212	5601-A474FE-00	EL 0.47uF ±20%
C213	5601-B470FC-00	CE 47PF ±5%
C214	5601-B100FC-00	CE 10PF ±5%
C215	5504-A20108-00	Trimmer Capacitor 20PF
C216	5605-B680FC-00	CE 68PF ±5%
C217	5605-B103FH-00	CE 0.01uF +80% −20%
C218	5605-B150FC-00	CE 15PF ±5%
C219	5605-B103FH-00	CE 0.01uF +80% −20%
C220	5605-B560FC-00	CE 56PF ±5%
C221	5605-B103FH-00	CE 0.01uF +80% −20%
C222	5601-A106CE-00	EL 10uF 16V ±20%
C223	5601-A106CE-00	EL 10uF 16V ±20%
C224	5601-C223GD-00	PO 0.022uF 100V ±10%

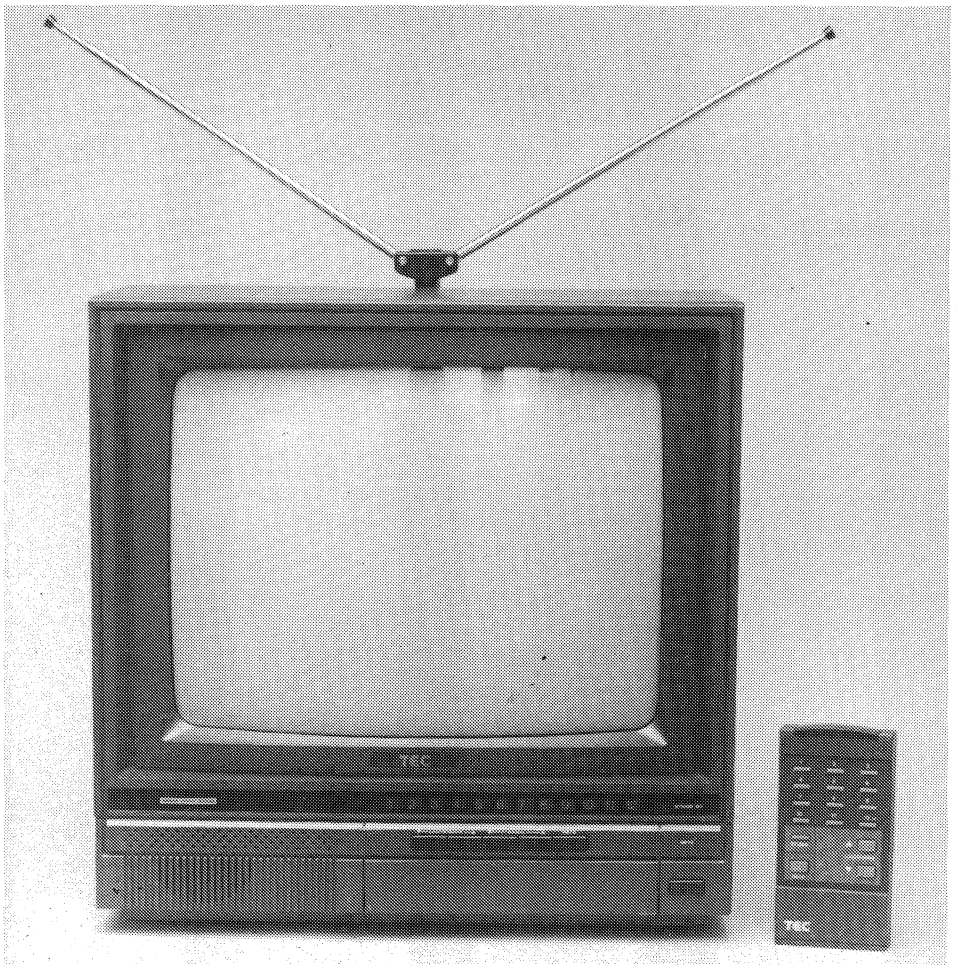
SYMBOL NO.	PART NO.	DESCRIPTION
Capacitors		
C225	5601-C223GD-00	PO 0.022uF 100V ±20%
C226		
C227		
C228		
C229	5601-A105FE-00	EL 1uF ±20%
C230	5601-A475FE-00	EL 4.7uF ±20%
C231	5601-A476CE-00	EL 47uF 16V ±20%
C232	5601-A105FE-00	EL 1uF ±20%
C233	5601-C103GD-00	PO 0.01uF 100V ±10%
C234	5605-B471FC-00	CE 470PF ±5%
C235	5601-A106CE-00	EL 10uF 16V ±20%
C236	5615-D562FC-00	PP 0.0056uF ±5%
C237	5601-A105FE-00	EL 1 uF ±20%
C238	5615-D152FC-00	PP 0.0015uF ±5%
C239	5615-D103FC-00	PP 0.01uF ±5%
⚠ C240	5615-D302FC-00	PP 0.003uF ±5%
C241	5601-A474FE-00	EL 0.47uF ±20%
C242	5605-B103FH-00	CE 0.01uF +80% −20%
C243	5601-C333GD-00	PO 0.033uF 100V ±10%
C244		
C245	5605-B102FD-00	CE 0.001uF ±10%
C246		
C247		
C248	5601-C153GD-00	PO 0.015uF 100V ±10%
C249	5601-C224GD-00	PO 0.22uF 100V ±10%
C250	5601-A474FE-00	EL 0.47uF ±20%
C251	5601-A225FD-00	EL 2.2 uF ±10%
C252	5601-A474FE-00	EL 0.47uF ±20%
C253	5601-A477CE-00	EL 470uF 16V ±20%
C254	5605-B403FH-00	CE 0.04uF +80% 20%
C301	5601-A476FE-00	EL 47uF ±20%
C302	5601-A106FE-00	EL 10uF ±20%
C303	5605-B221MD-00	CE 220PF 500V ±10%
C304	5601-A475HG-00	EL 4.7uF 160V +50% −10%


5701-B2088A-12
5701-B2088B-11
CRT
7001-3110BA-AA
FOCUS
SCREEN
H.V

Technische Warenservice GmbH

TEC

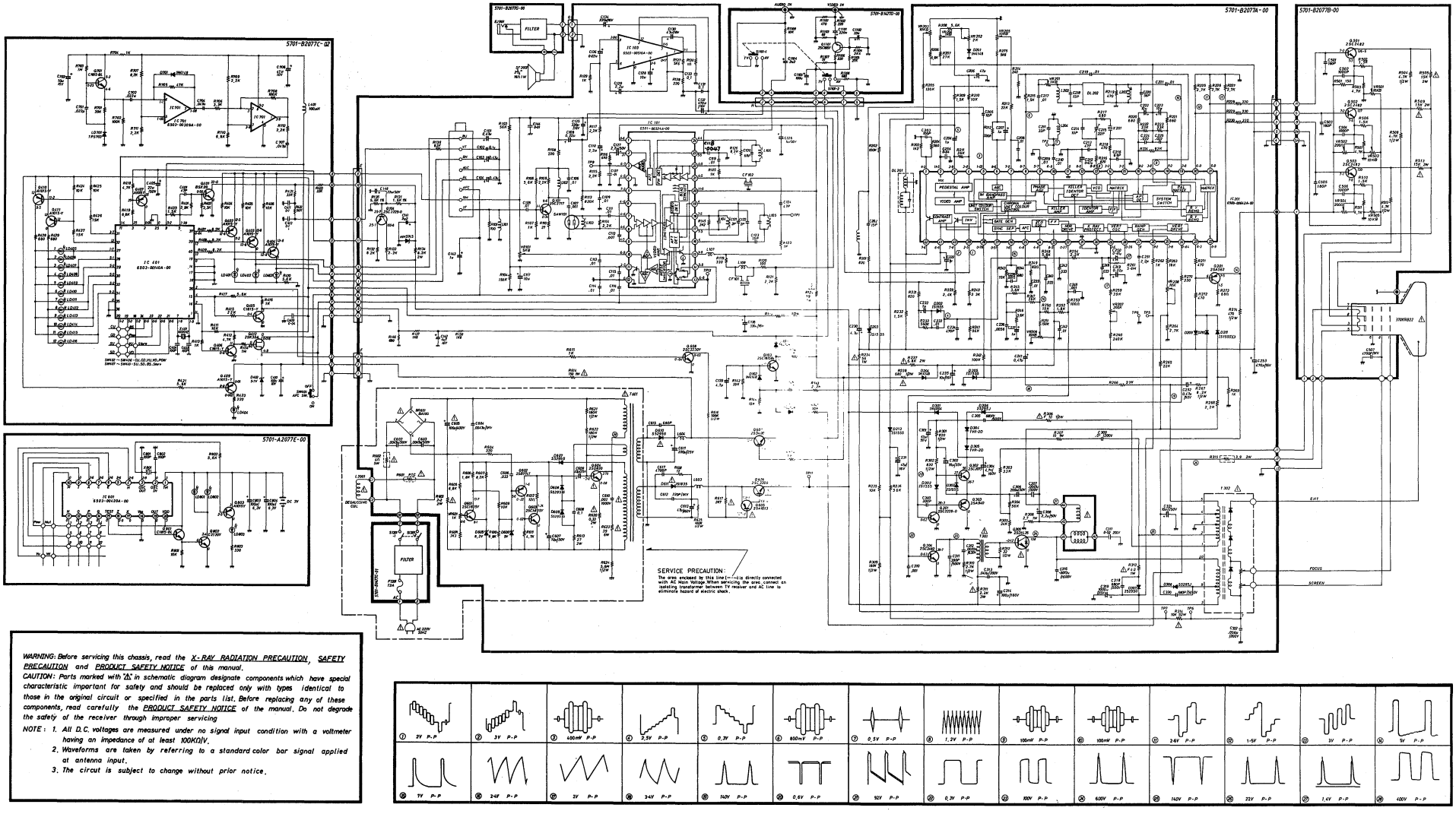
Service-Unterlagen



TEC 3653 VR
Service-Nr. 30-051

Rostocker Straße 8 · 6200 Wiesbaden-Bierstadt · Telefon 0 61 21 / 56 96-0 · Telex 04 186 560

Schaltplan


5701-B2077C-02
5701-A2077E-00
5701-B2076-00
5701-B2077D-00
5701-B2077A-00
5701-B2077B-00
SERVICE PRECAUTION:
The area enclosed by this line (---) is directly connected with AC Main Voltage. When servicing the area, connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

WARNING: Before servicing this chassis, read the X-RAY RADIATION PRECAUTION, SAFETY PRECAUTION and PRODUCT SAFETY NOTICE of this manual.

CAUTION: Parts marked with "⚠" in schematic diagram designate components which have special characteristic important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of the manual. Do not degrade the safety of the receiver through improper servicing

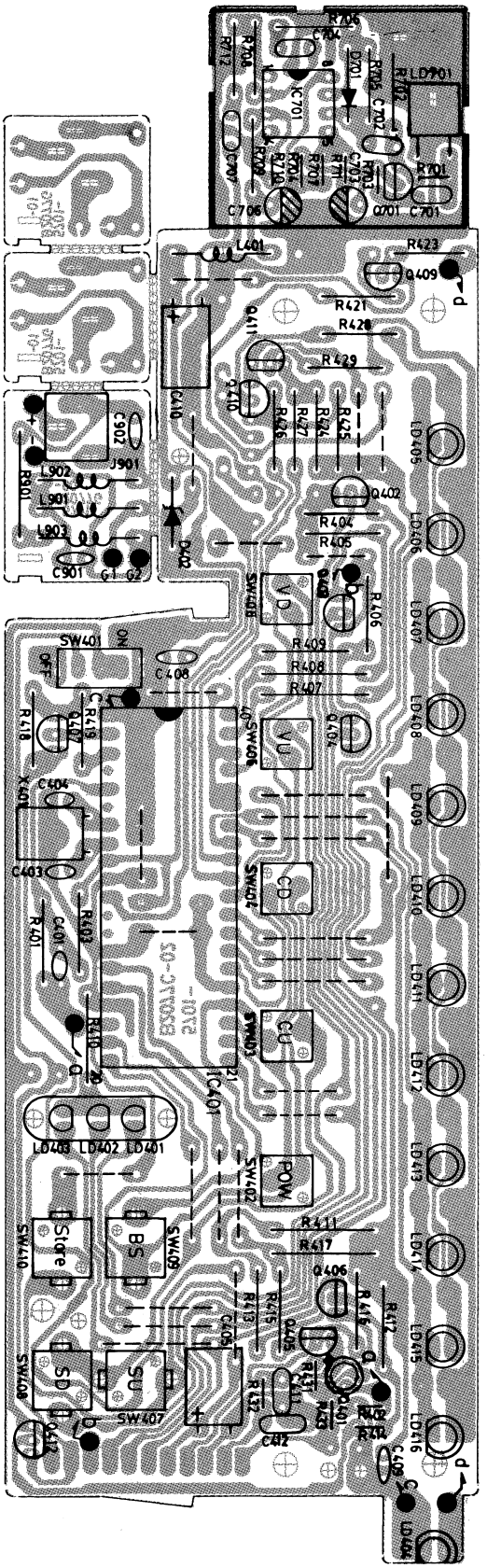
NOTE : 1. All D.C. voltages are measured under no signal input condition with a voltmeter having an impedance of at least 100KΩ/V.

2. Waveforms are taken by referring to a standard color bar signal applied at antenna input.

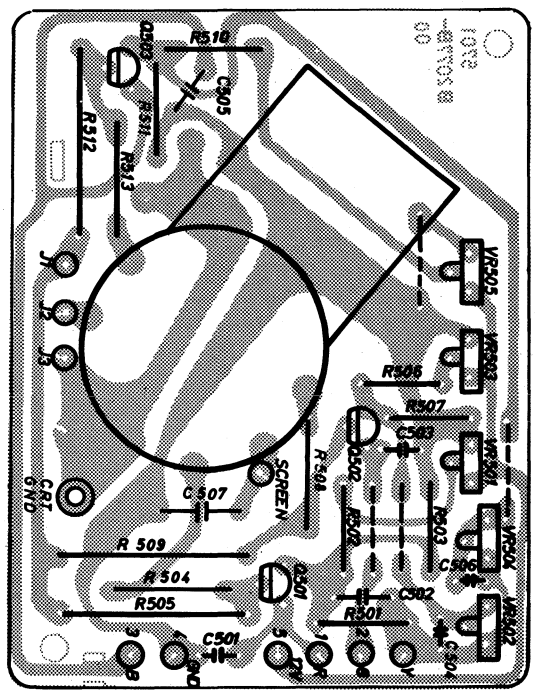
3. The circut is subject to change without prior notice.

Platinenansicht, Bedienteil

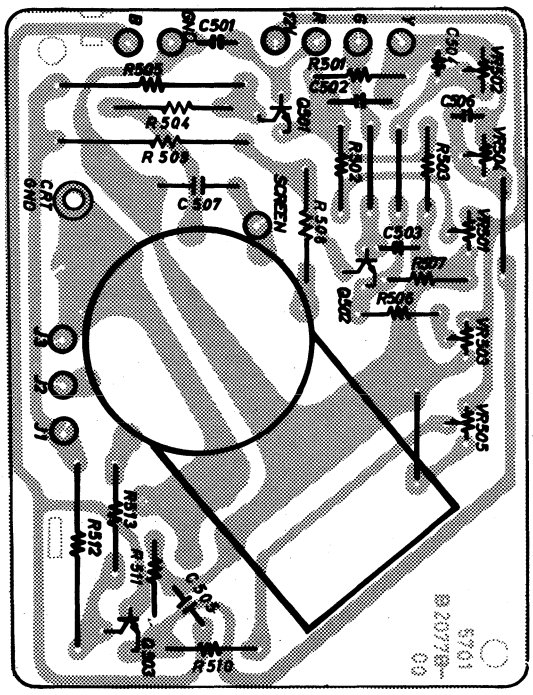
Draufsicht



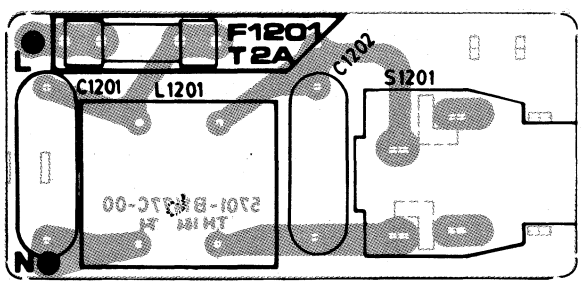
Bildröhrenplatine, Draufsicht



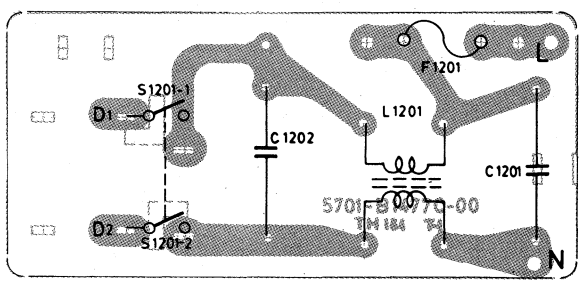
Bildröhrenplatine, Bodenansicht



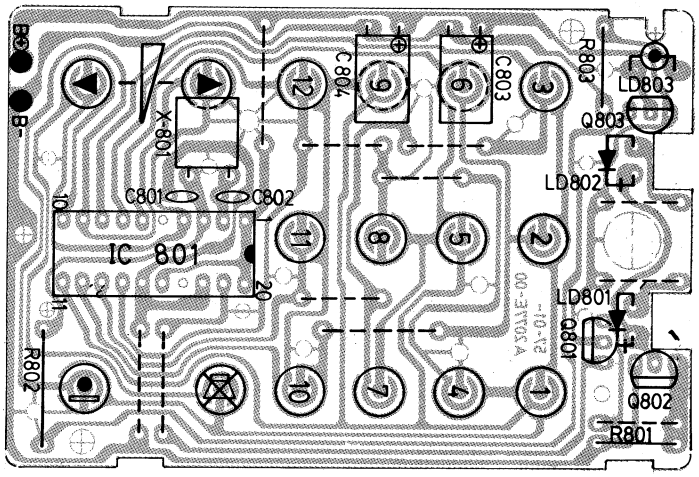
Platinendraufsicht, Netzfilterplatine



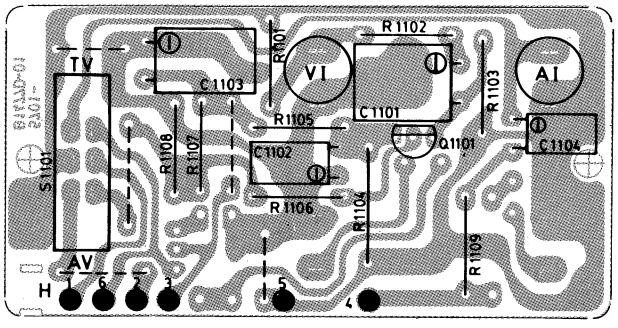
Platinenbodenansicht, Netzfilterplatine



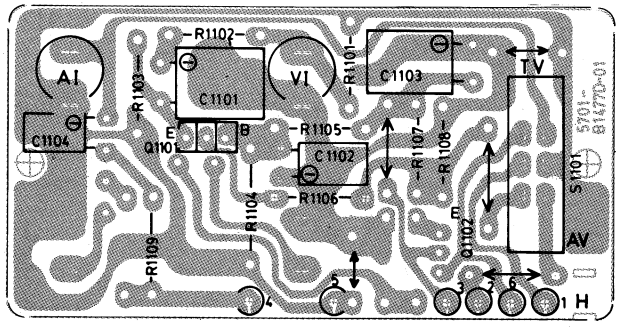
Platinenansicht, Fernbedienung



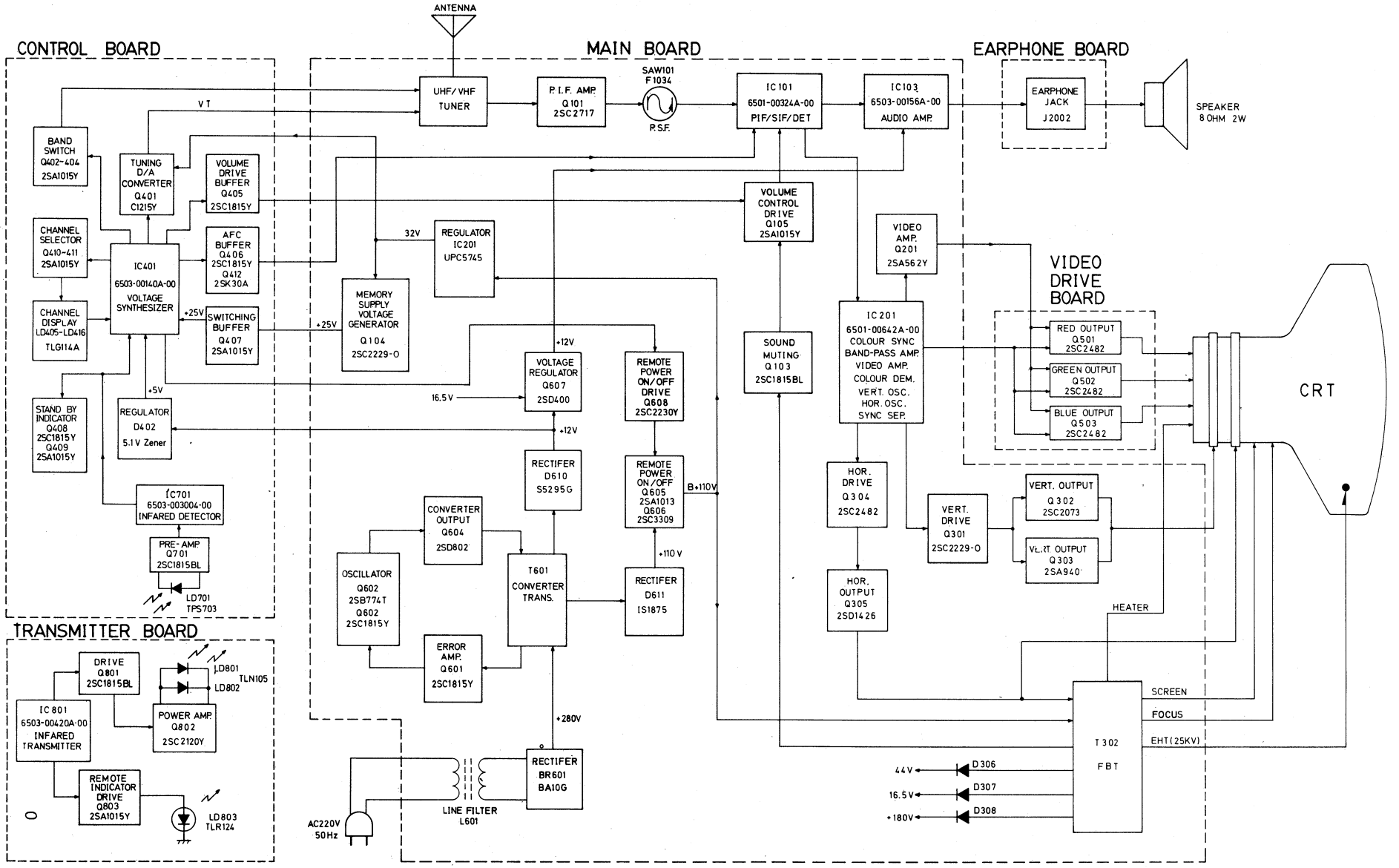
Platinendraufsicht AV, Eingang



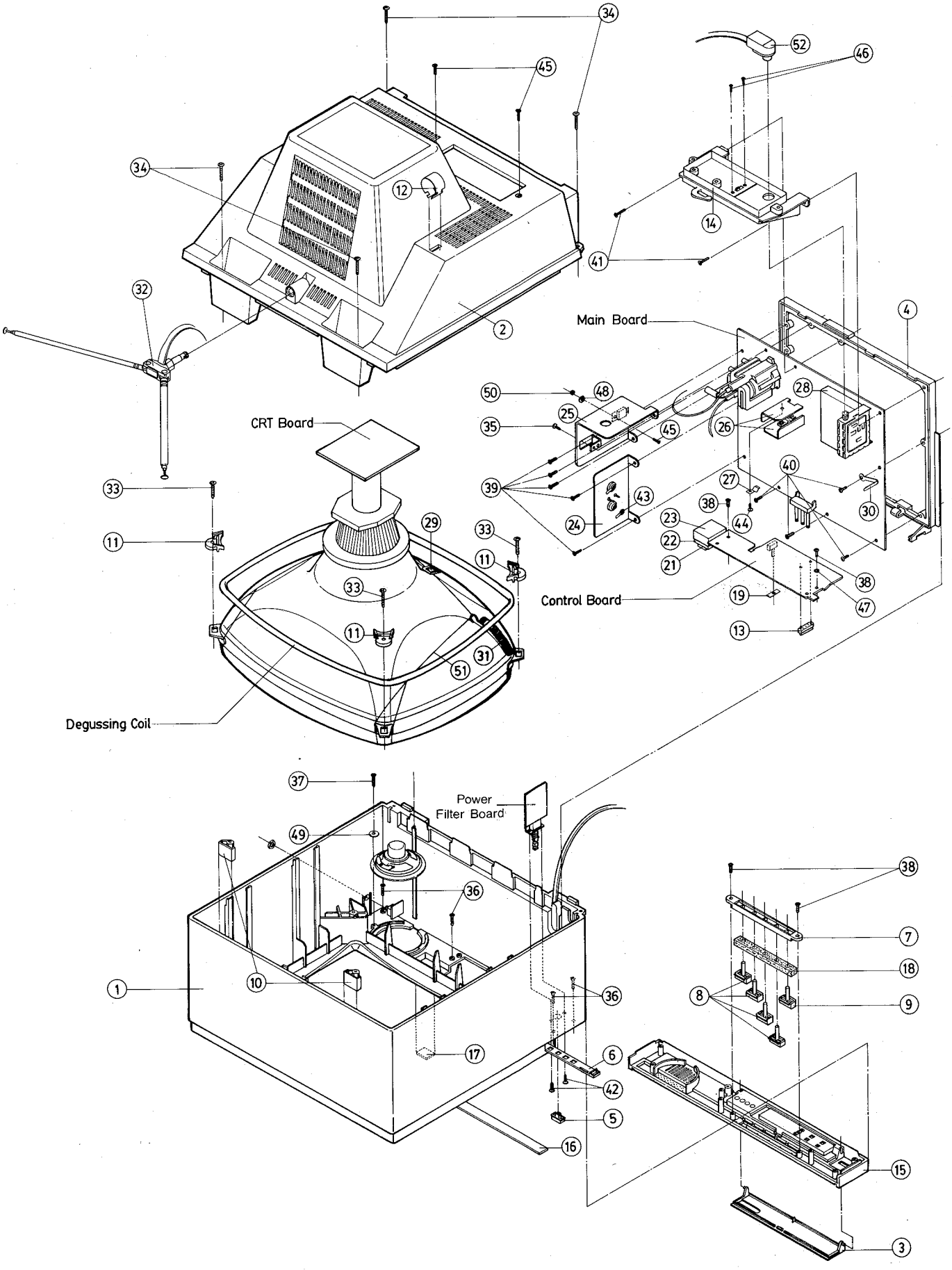
Platinenbodenansicht AV-Eingang



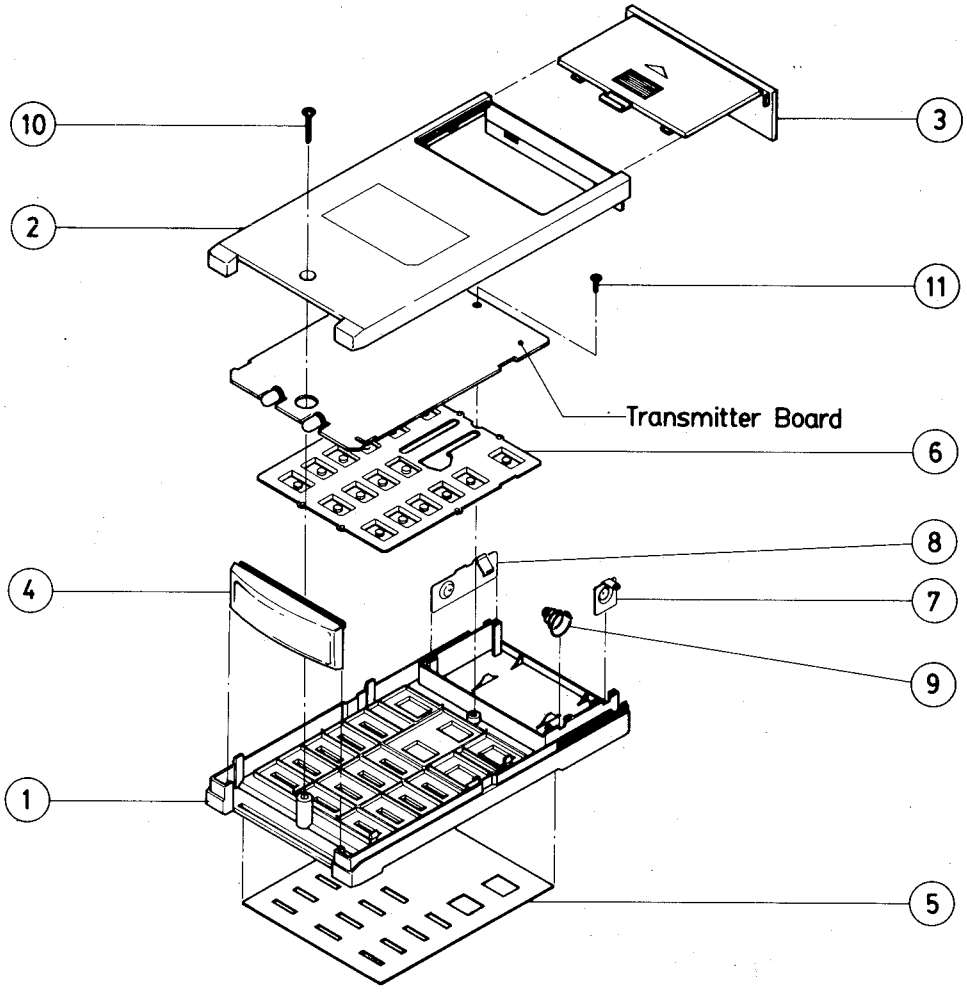
Block-Diagramm



Explosionszeichnung, Gehäuse



Explosionszeichnung, Fernbedienung



Konvergence-Einstellung
Farbeinheit-Einstellung

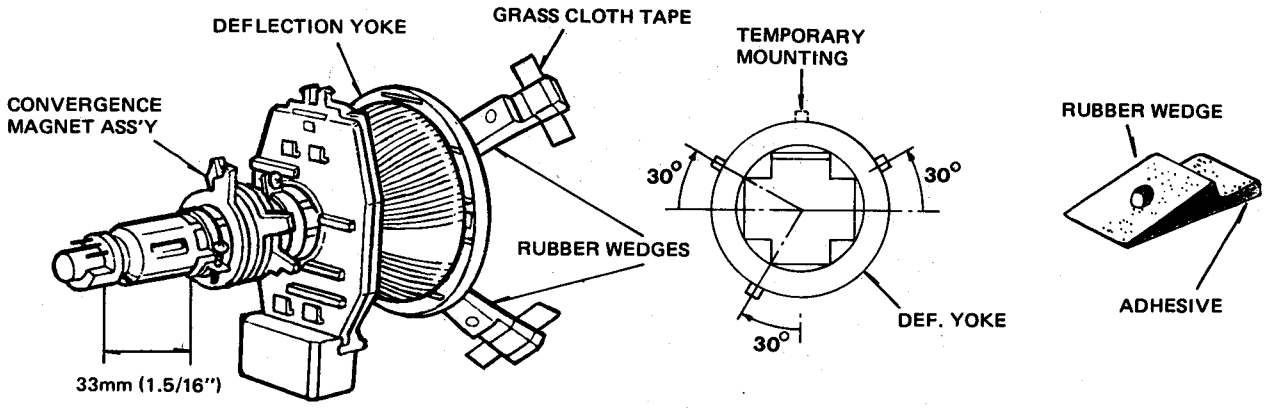


Figure 13 **RUBBER WEDGES LOCATION**

4. Circumference Convergence Adjustment

NOTE: This adjustment requires Rubber Wedges and Glass Cloth Tapes.

(a). Loosen the clamping screws of deflection yoke to allow the yoke to tilt.

(b). Place a wedge as shown in figure 13 temporarily. (Do not remove cover paper on adhesive part of the wedge).

(c). Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (see fig. 15) Push the mounted wedge into the space between picture tube and the yoke to hold the yoke temporarily.

(d). Place other wedge into bottom space and remove the cover paper to stick.

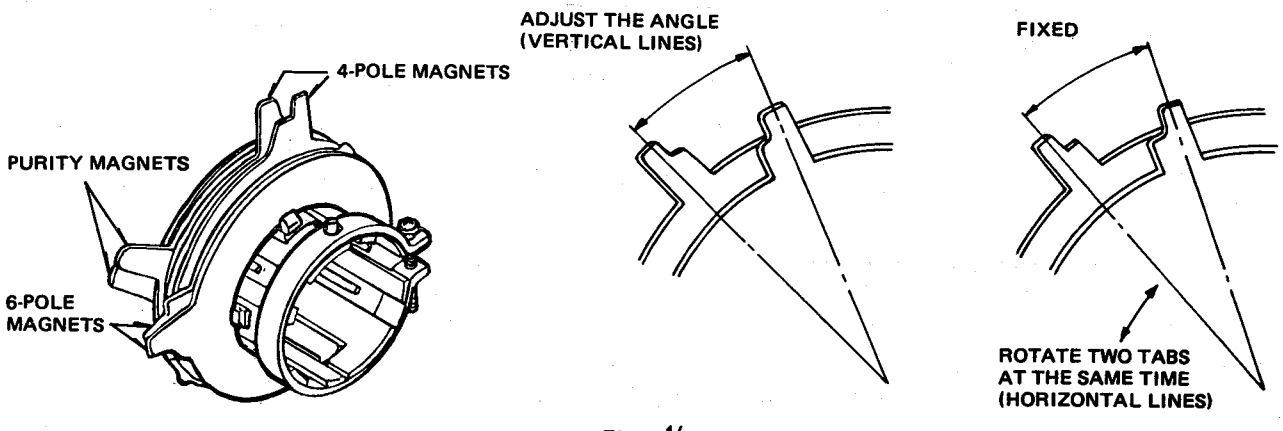
(e). Tilt front of the yoke right or left obtain better convergence in circumference. (see fig. 15)

(f). Hold the yoke position and put another wedge in either upper space, remove cover paper and stick the wedge on picture tube to hold the yoke.

(g). Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.

(h). After placing three wedges, recheck over all convergence. Tighten the screw firmly to hold the yoke tightly in place.

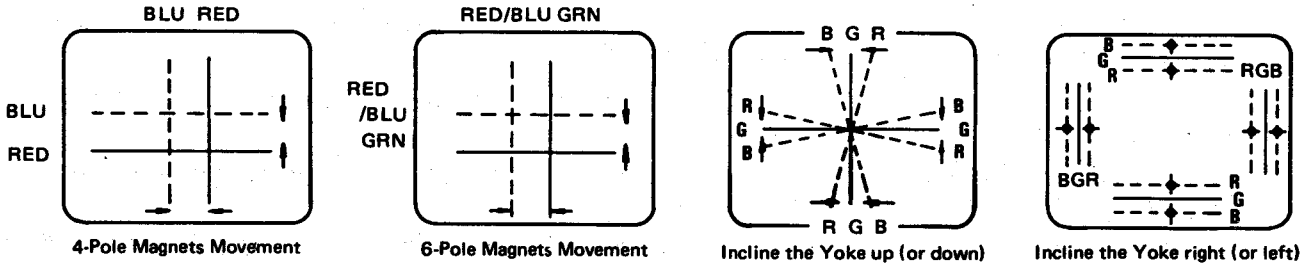
(i). Stick 3 grass cloth tapes on wedges as shown in figure 13.



CONVERGENCE MAGNET ASSEMBLY

Figure 14

ADJUSTMENT OF MAGNETS



4-Pole Magnets Movement

6-Pole Magnets Movement

Incline the Yoke up (or down)

Incline the Yoke right (or left)

Center Convergence by Convergence Magnets

Circumference Convergence by DEF Yoke

Konvergence-Einstellung

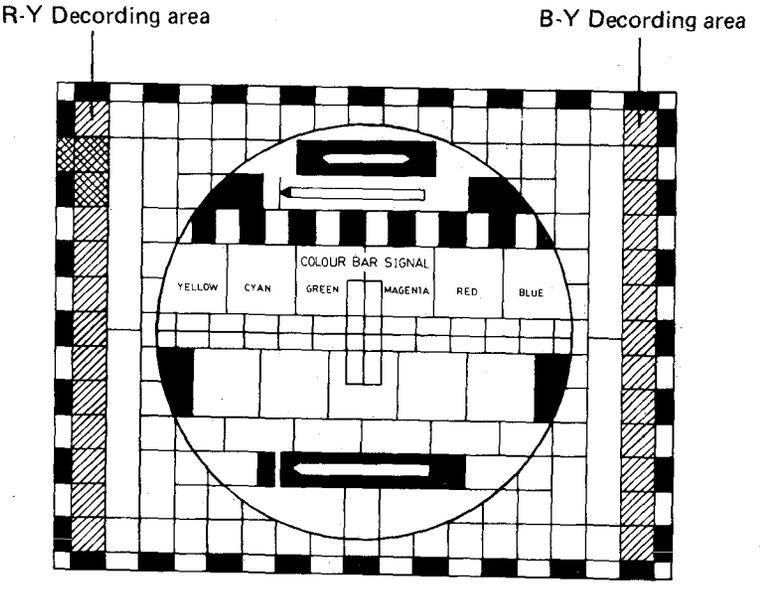


Fig. 12 Philips standard colour pattern

III. Colour Purity And Convergence Adjustment

1. Colour Purity Adjustment

NOTE: Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

(a). Demagnetize the picture tube and cabinet using a degaussing coil.

(b). Turn the Contrast and Brightness controls to maximum.

(c). Adjust Red and Blue Cut-off controls (VR501 and VR505) to provide only a green raster. Advance the Green Cut-off control (VR503) if necessary.

(d). Loosen the clamp screw holding the yoke backward to provide vertical green belt (Zone) in the picture screen.

(e). Remove the Rubber Wedges.

(f). Rotate and spread the tabs of the purity magnet (see fig. 13) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically.

(g). Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.

(h). Check the purity of the red and blue raster by adjusting the Bias controls.

(i). Obtain a white raster, referring to white balance adjustment.

(j). Proceed with convergence adjustment.

2. Convergence Magnet Assembly Positioning

Convergence magnet assembly and rubber wedges need mechanical positioning following fig.13.

3. Center Convergence Adjustment

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

(a). Receive crosshatch pattern with a colour bar signal generator.

(b). Adjust the Brightness and Contrast controls for well defined pattern.

(c). Adjust two tabs of the 4 Pole Magnets to change the angle between them (see fig. 14) and superimpose red and blue vertical lines in the center area of the picture screen. (see fig. 15).

(d). Turn both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the center of screen (see fig. 15).

(e). Adjust two tabs of 6 Pole Magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.

(f). Repeat adjustments 3, 4, 5, keeping in mind red, green and blue movement, because 4 Pole Magnets and 6 Pole Magnets interact and make dot movement complex.

Meßdiagramm

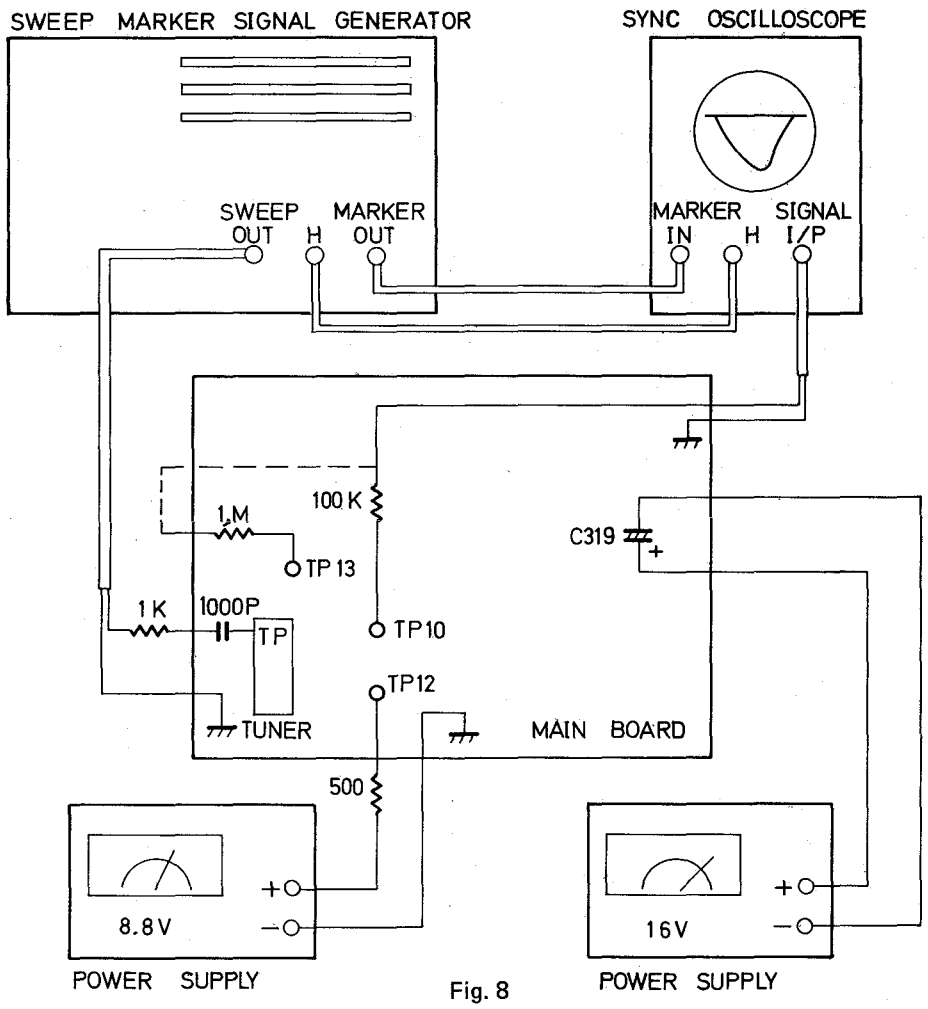


Fig. 8

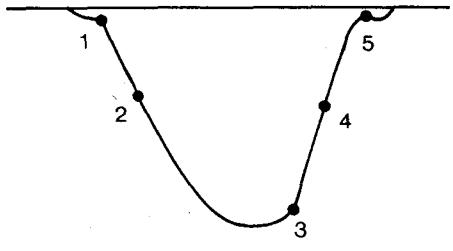
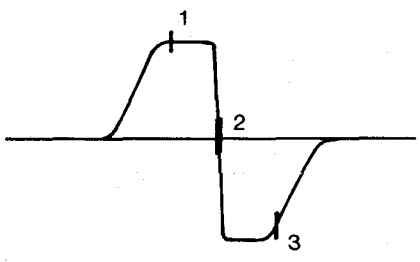


Fig. 9 **P.I.F. Response Curve**

P. I. F. RESPONSE

NO.	B/G	dB
1	33.4 MHz	−20 −26
2	34.47 MHz	−6 ±1
3	37.9 MHz	0
4	38.9 MHz	−6 ±1
5	40.4 MHz	> −40



AFC Response Curve

AFC RESPONSE

NO.	B/G	dB
1	37.9 MHz	+
2	38.9 MHz	0
3	40.4 MHz	−

Abgleichanweisung

(B) S.I.F. Alignment

(1). The signal at AM/FM signal generator which is set at SIF Frequency (5.5 MHz for B/G system)with AF 400Hz, 30% FM modulation is applied to TP1 through a 1K ohm resistor and a 1000pf capacitor. As shown in figure 11.

(2). Short pin 5 of IC101 to ground.

(3). Connect a 30K ohm VR to pin 1 of IC101.

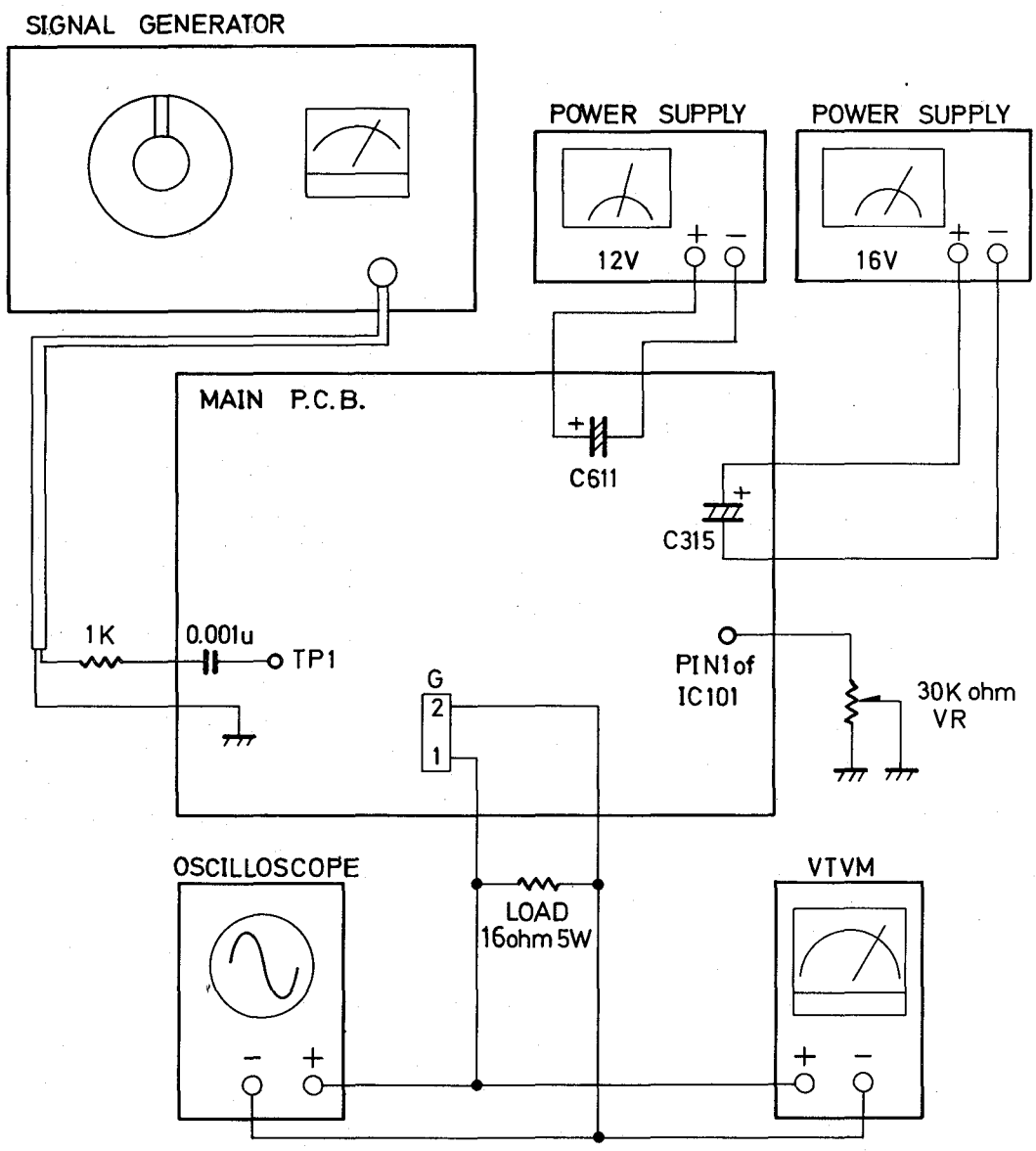
(4). Connect a 16 ohm dummy load across socket G pin 1,2 in parallel with an oscilloscope and VTVM.

(5). Apply a + 16V DC across C319 and +12V DC across C611 on Main board.

(6). Adjust the 30K ohm VR for maximum undistorted output.

(7). Fine adjust L106 to obtain a maximum amplitude signal output with minimum distortion.

(8). Check the audio output level with 1W (4V) at maximum volume position.



Abgleichanweisung

CAUTION

Before servicing the chassis, read the "Safety Precaution", "X-Ray Radiation Precaution" and "Product Safety Notice" on Page 2 of this manual."

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The normal value of the high voltage of this receiver is 24 KV at zero beam current (minimum brightness) under 220V AC power source. The high voltage must not, under any circumstances, exceed 28 KV.
2. Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
3. The primary source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some parts in this receiver have special safety – related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver.

The following are the necessary precautions to be observed before servicing this chassis.

1. Since the power supply circuit of this receiver is directly connected to the AC power line, an isolation transformer should be used during any dynamic service to avoid possible shock hazard.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. When replacing parts or circuit boards, disconnect the power cord.
5. When replacing a high wattage resistor (oxide metal film resistor) on circuit board, keep the resistor 10mm (1/2 in.) away from circuit board.
6. Connection wires must be kept away from components with high voltage or high temperature.
7. If any fuse in this TV receiver is blown, replace it with the FUSE specified in the chassis parts list.
8. The receiver is designed to operate with 220V (50Hz) AC mains.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-RAY RADIATION protection afforded by them cannot necessarily be obtained by using replacement components rated for higher wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements electrical components having such features are marked with "⚠" on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-RAY RADIATION or other hazards.

Abgleichanweisung

GENERAL ADJUSTMENT INSTRUCTION

This receiver is transistorized and special care should be taken when servicing. Read the following matters that demand special attention before attempting adjustment.

1. Adjustment requires an exact procedure and should be undertaken only when necessary.
2. An isolation transformer should be used during any dynamic service to avoid possible shock hazard.
3. The test equipment specified or its equivalent is required to perform the alignment properly. Use of equipment which does not meet these requirements may result in improper alignment.
4. Correct matching of the equipment is essential. Failure to use proper matching will result in responses which can not represent the ture operation of the receiver.
5. The AC power line voltage should be kept 215 to 225 volts 50 Hz during alignment.
6. Do not attempt to connect or disconnect any wire while the receiver is in operation. Make sure the power cord is disconnected before replacing parts in the receiver.
7. Switch on the TV receiver and set AFC switch at "OFF" position. Adjust the controls for optimum picture and then set AFC switch at "ON" position.
8. Unless otherwise noted, do not perform any adjustment until the receiver has been turned on for at least 10 minutes.
9. Set the AV/TV switch to TV position. (For models with A/V socket only).

I. Picture and Sound I.F. Adjustment

Test Equipment:

1. AM/FM signal generator (4.5MHz–6.5MHz)
2. Sweep/Marker signal operator (30MHz–60MHz)
3. Sync. oscilloscople.
4. Oscilloscople (volt sensitivity over 10mV and input impedance over 1 M ohm, below 10PF).
5. Probe (Low capacitance)
6. High impedance electronic voltmeter on VTVM (Input impedance having 100K ohm/V at least.
7. DC power supply (Source such as a battery or a well regulated and isolated DC bias supply).

(A) Picture I.F. and AFC Adjustment:

(a). P.I.F. Alignment

(1). Connect the signal output of sweep/marker generator in series to Tp on tuner through 1K ohm resistor and 1000 pf capacitor (See Figure 8).

(2). Connect the vertical input terminal of an sync oscilloscople in series with a 100K ohm resistor to TP 10 (IC201–pin39).

(3). Apply a + 16V DC across C319 on Main Board.

(4). Apply a + 8.8V DC dummy AGC bias in series to TP12 (pin 5 of IC101) through 500 ohm resistor.

(5). Tune L103 and L104 alternatively to obtain a waveform as shown in Fig. 9.

(b). AFC Alignment

(1). Carry out AFC adjustment after PIF adjustment in made.

(2). Reconnect the vertical input of the sync oscilloscope with 1M ohm resistor in series to TP13 (pin 13 of IC101).

(3). Set AFC Switch to OFF position.

(4). Adjust L105 for the AFC waveform as shown in Fig. 10.

Abgleichanweisung

II. General Adjustment

1. Automatic Degaussing

An automatic degaussing coil is attached around the picture tube, degaussing the tube properly in about one second after the set is switched on. If the receiver is moved or faced in a different direction, the power must be switched off at least 15 minutes in order that the automatic degaussing circuit operates properly. External degaussing is necessary if the automatic degaussing proves ineffective after the set is moved.

External degaussing is done by moving a degaussing coil circlewise in front of the face plate and then moving it away step by step until it is about two meters from the screen, then switch off the degaussing coil. If residual colour spots are still found on the screen, adjust the colour purity and convergence.

2. B+ (110V) adjustment

CAUTION: To avoid X-ray hazards, B+ voltage must be set correctly at 110V position.

(a). Make sure the AC power supply is 220V, 50Hz.

(b). Switch on the TV receiver, tune in an active channel.

(c). Connect test point TP11 on the main PCB (5701-B2077A-00) to a reliable DC voltmeter.

(d). Adjust VR601 on main PCB (5701-B2077A-00) for B+ 110V voltage reading.

3. High Voltage Check

CAUTION: There is no high voltage adjustment in this chassis, B+ 110V voltage directly relates to the high voltage, it must be properly adjusted to insure the correct high voltage. The high voltage does not exceed 28KV under any conditions.

(a). Connect an accurate high voltage meter to the second anode cap of the picture tube.

(b). Turn on the receiver, set Brightness and Contrast controls to minimum. (Zerobeam current)

(c). Make sure the high voltage does not exceed 28KV.

(d). No matter whether the luminance, contrast and chrominance controls are set to maximum or minimum , the high voltage must be kept under 28KV.

4. Horizontal Oscillator Adjustment

If the picture shows an unstable sync. in horizontal, adjust the VR 206 semi-variable resistor, setting it at the center of holding range.

5. Vertical Oscillator Adjustment

If the picture moves up or down on the screen, adjust the VR207 until there is a single image without vertical movement.

6. Height Adjustment

Vertical Height Control (VR208) can change the size of the picture. Make fine adjustment until the picture overscans the mask 2mm.

7. Focusing

Receive a TV test pattern signal, adjust controls for optimum picture, Adjust Focus Control for a well-defined, sharpest display in the centre area of the screen.

8. Delay AGC Adjustment

(a). Tune the set in the strongest station in your area.

(b). Turn AGC Delay control (VR101) on Main Board to fully counterclockwise position.

(c). Adjust VR101 clockwise until noise (snow) disappears from the screen.

9. Sub-Brightness Adjustment

(a). Tune in Philips Standard Colour pattern signal.

(b). Set the Contrast, Brightness and Colour Controls to the minimum.

(c). Set the Sub-Brightness Control (VR202) to the center and warm up the set for 5 minutes.

(d). Adjust Sub-Brightness Control (VR202) until light just appears on the screen.

Abgleichanweisung

10. White Balance Adjustment

(a). Receive a monochrome signal and warm up the set for 15 minutes.

(b). Set the R.G.B. cut off controls (VR501, VR503, VR505) and the G.B. drive controls (VR502, VR504) at center positions.

(c). Rotate the screen control fully counterclockwise.

(d). Disconnect the luminance output terminal connector and connect TP 5 to ground with a jumper wire.

(e). Rotate the screen control gradually clockwise until the first horizontal appears on the screen.

(f). If the first horizontal is in blue, adjust VR501, VR503 to increase the red and green component level to get a white horizontal line.

(g). Remove the jumper wire and connect back the luminance output connector. Set the luminance and contrast control at normal position. Adjust VR502, VR504 to maintain a good white balance at the brightest part of the screen.

(h). Turn the brightness and contrast controls to maximum and minimum. Observe the screen white balance, if it is not proper in high brightness or low brightness condition, adjust R.G.B. cut off controls or G.B. drive controls in order to maintain a good white balance in both low and high luminance conditions.

11. Luminance Channel Chroma Trap

(a). Tune in a colour bar signal.

(b). The test probe of oscilloscope connects to the pin 3 of IC201 and ground.

(c). Adjust trap coil of DL201 for minimum chroma signal (4.433 MHz).

12. Colour Sync Adjustment

(a). Tune in a colour bar signal.

(b). Set the contrast control to minimum and colour control to maximum.

(c). Cut off the colour killer by connection the pin 2 and pin 12 of IC201 with 10 Kohm resistor.

(d). Short L204 to ground.

(e). Adjust the colour sync. variable capacitor (C215) on the main board so that the colour bar pattern stand still or drifts slowly across the picture screen.

(f). Remove the capacitor and resistor.

(g). Check that the colour sync. is stable with channel changing and power on-off operation. If the colour is slow to appear or the colour sync. is out of order, return the colour sync. variable capacitor (C215) for proper colour display.

13. PAL Matrix Adjustment

(a). Tune in a Philips standard colour pattern.

(b). Set the colour control at maximum position.

(c). If the PAL Matrix adjustment is incorrect, the Venetian Blind would appear in the colour bar area.Then adjustments should be made as follow:

(d). Adjust VR201 to minimize the Venetain Blind in the R-Y, B-Y Decording area.

(e). Adjust L201 & L206 alternatively to minimize the Venetain Blind in the colour bars area.

(f). Repeat (d) & (e) step until the Venetain Blind disappears.

Schaltplan, Tuner

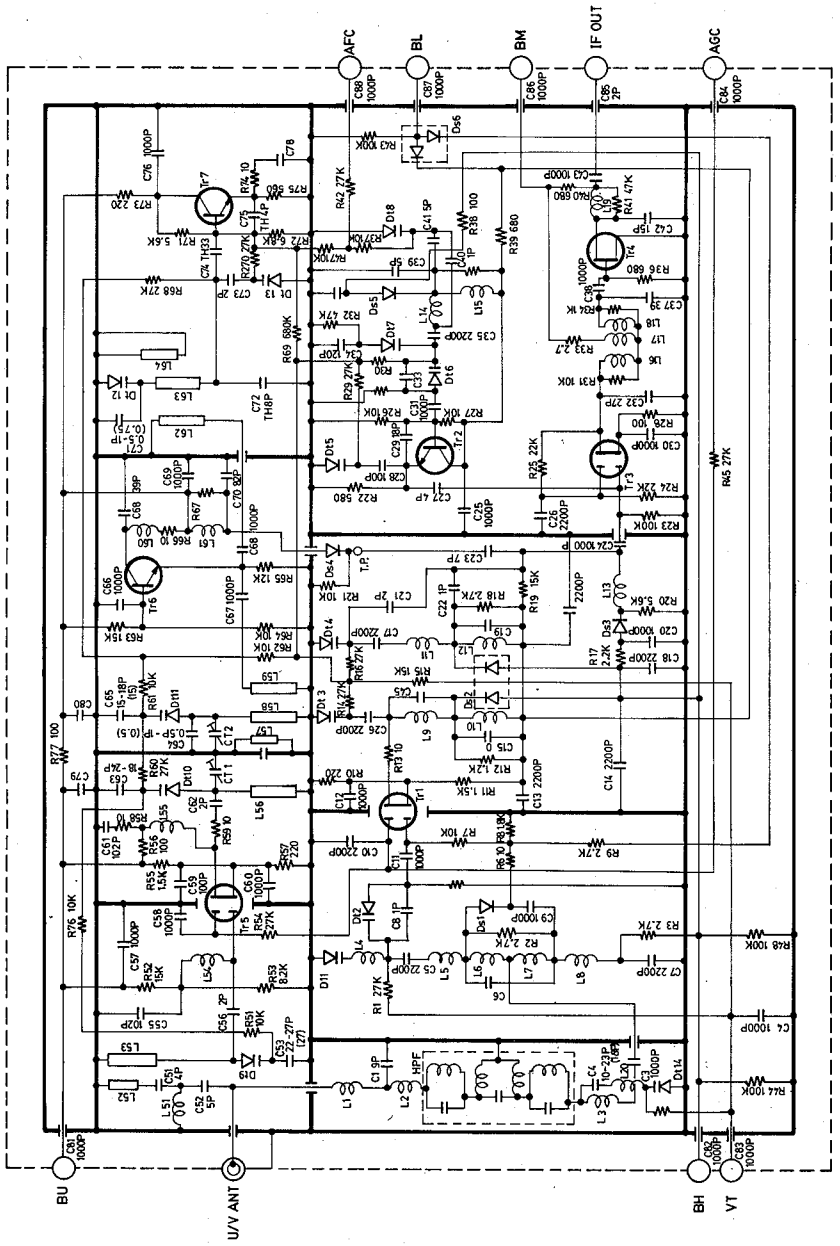
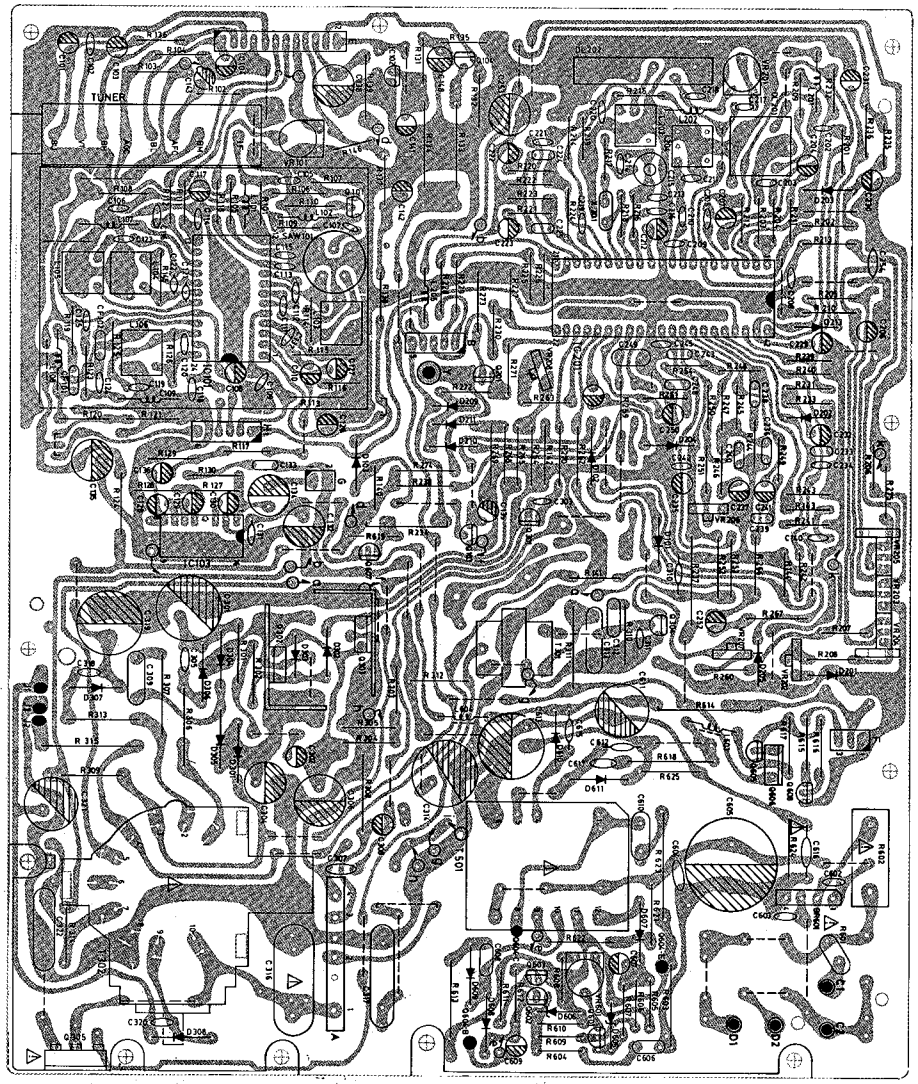
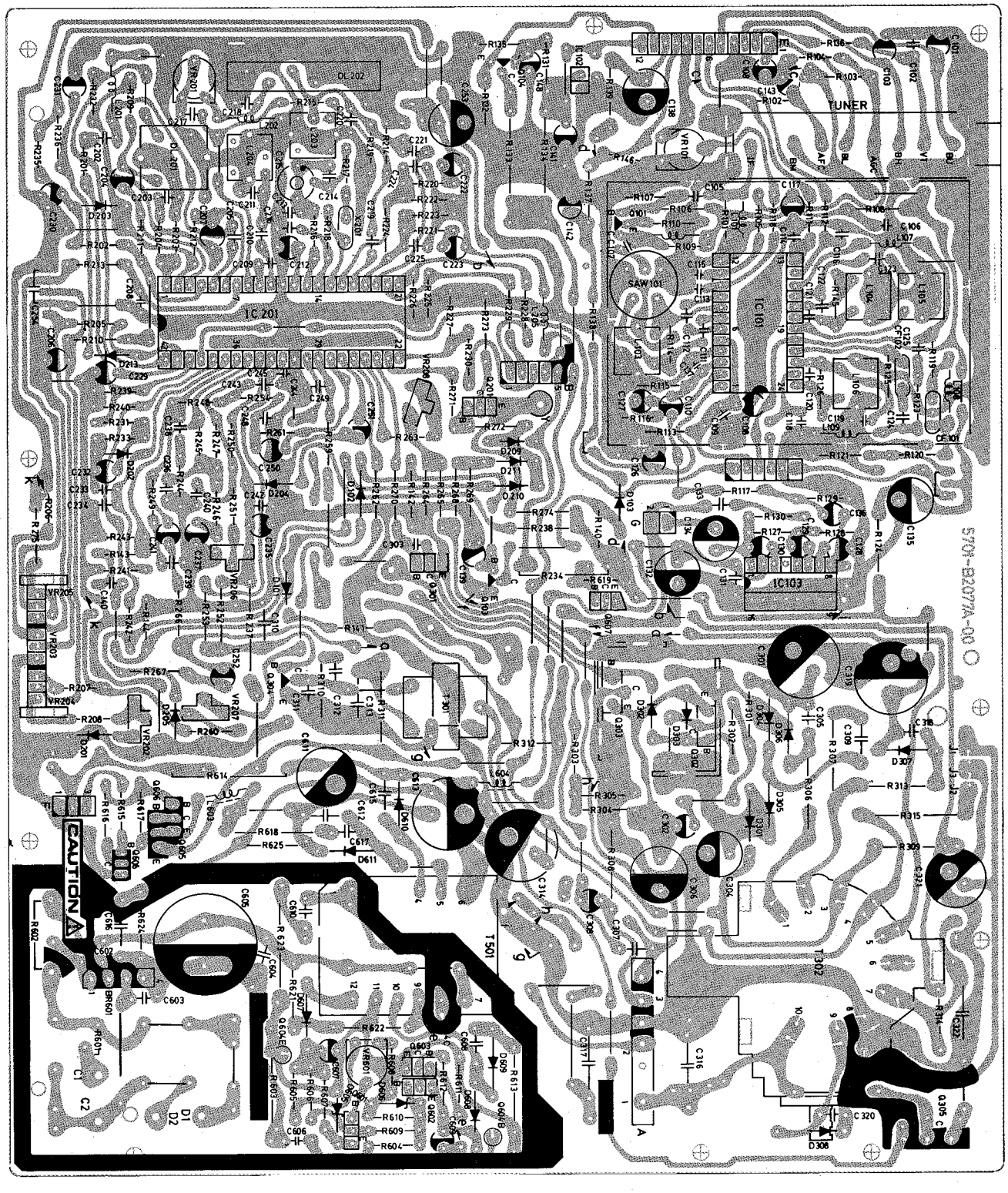


Fig.20

Platinenansicht, Hauptplatine



Platinenbodenansicht, Hauptplatine



T E C WARENSERVICE E R S A T Z T E I L P R E I S L I S T E VOM: 25.06.87
ROSTOCKER STR. 6-8

GERAETEART: FERNSEHGERAETE, FARBIG, PORTAB BLATT: 1

6200 WIESBADEN-BIERSTADT

MODELL: 30-051 TEC 3653 VR C.T.V.

TEILE-NR.	POSITION	BEZEICHNUNG	DESCRIPTION	PREIS CODE
30051001	1	GEHAEUSEVORDERTEIL	FRONT CABINET	J3
30051002	2	GEHAEUSERUECKTEIL	BACK CABINET	C3
30051112	15	FRONTRAHMEN, BEDIENTEIL	CONTROL FRONT PANEL	S1
30051113	3	ABDECKKLAPPE,SENDER-BILDEINST.	CONTROL COMPARTMENT DOOR	F1
30051114	4	HALTERUNG, MONTAGEPLATTE	CHASSIS BRACKET	M1
30051115	6	HALTERUNG, PROG.-ANZEIGEPLATTE	FILM HOLDER	C1
30051116	7	HALTERUNG F. TASTEN-LST./PROG.	VOL./CH BUTTON HOLDER	B1
30051117	10	HALTERUNG, GEHAEUSERUECKTEIL	CABINET MTG. HOLDER	A1
30051118	11	HALTERUNG, BILDROEHRE	PICTURE TUBE MTG.HOLDER	A1
30051120	13	HALTERUNG, LED-BAND-ANZEIGE	LED-HOLDER	A1
30051123	16	FENSTER, PROG.-ANZEIGE	CHANNEL LENS	G1
30051124	17	FENSTER, INFRAROTEMPFAENGER	INFRARED LENS	A1
30051035		TYPENSCHILD	BACK PLATE - TEC	A1
30051036		NAMENSSCHILD, "TEC"	NAME PLATE, "TEC"	A1
30051119	12	ZUGENTLASTUNG, NETZKABEL	AC-CORD CLIP	A1
30051134		ZIFFERNBLATT, PROG.-ANZEIGE	FILM CHANNEL NO SHEET	A1
30051135		BLENDE, VIDEO-AUDIOBUCHSE	JACK PLATE INLAY	A1
30051136		HALTERUNG, MONTAGERAHMEN	MAIN CHASSIS MTG. HOLDER	B1
30051037		AUFKLEBER, WARNHINWEIS	POWER SUPPLY WARNING LAB	A1
30051132		BLENDE-BEDIENTEIL, E-REGLER	CONTROL PLATE, "A"	A1
30051133		BLENDE-BEDIENTEIL, BAND	CONTROL PLATE, "B"	A1
30051245	52	ANTENNENANSCHLUSSADAPTER	MATCHING TRANSFORMER	E1
30051121	14	ANSCHLUSSBUCHSENPLATTE	JACK PLATE, "B"	G1
30051122	24	HALTEBLECH F. KUEHLKOERPER	HEAT SINK BRACKET	E1
30051101	25	KUEHLKOERPER,HORIZ.VERSTAERKER	HEAT SINKER, HORIZONTAL	J1
30051126	26	KUEHLKOERPER, TRANSISTOR	HEAT SINKER, TRANSISTOR	A1
30051125	18	POLSTER F. LST.-REG.-TASTEN	SPONGE FOR BUTTON	A1
00000006				
30051051	5	KNOPF, EIN/AUS	MAIN POWER SW.KNOB	A1
30051068	19	KNOPF, SUCHLAUF-SPEICHER-BAND	KNOB CUSHION	A1
30051091	8	TASTEN, LST.U.PROG.-UMSCHAL.	VOL./CH.BUTTON (UP/DOWN)	K2
30051092	9	TASTE, EIN/BEREITSCHAFT	SOFT TOUCH POWER BUTTON	A1
00000006				
00000006				
30051295		FERNBEDIENUNG, KPL.	REMOTE HANDSET	N3
30051127	1	GEHAEUSEOBERTEIL, FERNBED.	TOP CABINET, TEC	G1
30051128	2	GEHAEUSEUNTERTEIL, FERNBED.	BOTTOM CABINET	F1
30051008	3	BATTERIEFACHDECKEL	BATTERY DOOR	C1
30051129	4	INFRAROTLINSE	INFRARED LENS	B1
30051130	6	GUMMIKONTAKTPLATTE,FERNBED.	RUBBER CONTACT PLATE	M1
30051131	5	ABDECKPLATTE, FERNBEDIENUNG	CONTROL FRONT TRIM PLATE	C1
30051105	7	BATTERIEKONTAKT (+)	BATTERY CONTACT PLATE (+	A1
30051107	8	BATTERIEKONTAKT (+/-)	BATTERY CONTACT PLATE (+	A1
30051106	9	BATTERIEKONTAKTFEDER (-)	BATTERY CONTACT SPRING (	A1
00000006				
00000006				
00000006				
30051219		HAUPTPLATINE, KPL.	MAIN PCB, ASSY	R4
30051220		BILDROEHRENPLATINE, KPL.	CRT PCB, ASSY	03
30051221		STEUERUNGSPLATINE, KPL.	CONTROL PCB, ASSY	V3
00000006				
30051297		BILDROEHRENSOCKEL	PICTURE TUBE SOCKET	B2
00000006				
00000006				
30051154	T301	HORIZONTAL TREIBER TRAFO	HORIZONTAL DRIVE TRANSFO	E1

TEILE-NR.	POSITION	BEZEICHNUNG	DESCRIPTION	PREIS CODE
30051153	T302	ZEILENTRAFO	FLYBACK TRANSFORMER	V3
30051155	T601	SCHALTTRANSFORMATOR	SWITCHING TRANSFORMER	A3
00000006				
00000006				
30051169		TUNER, BIG SYST.	TUNER, BIG SYST.	X3
00000006				
00000006				
00000006				
30051199	L101	VERSTEILERUNGSSPULE, POS.L101	PEAKING COIL	A1
30051200	L102	VERSTEILERUNGSSPULE, POS.L102	PEAKING COIL	A1
30051201	L107	VERSTEILERUNGSSPULE, PO.L107	PEAKING COIL	A1
30051202	L202	VERSTEILERUNGSSPULE, POS.L202	PEAKING COIL	A1
30051203	L108	VERSTEILERUNGSSPULE, POS.L108	PEAKING COIL	A1
30051204	L201	VERSTEILERUNGSSPULE, POS.L201	PEAKING COIL	A1
30051205	L603	DROSSELSPULE, POS.L603	CHOKE COIL	B1
30051208	L604	DROSSELSPULE, POS.L604	CHOKE COIL	A1
30051209	L103	ANPASSUNGSSPULE, POS.L103	PIF MATCHING COIL	C1
30051210	L104,105	DEMODULATORSPULE, POS.L104,105	PIF DET COIL	C1
30051211	L106	DEMODULATORSPULE,TON-ZF,P.106	SIF DET COIL	C1
30051212	L401	DROSSELSPULE, POS.L401	CHOKE COIL	A1
30051214	L901-903	DROSSELSPULE, POS.L901-903	CHOKE COIL	C1
30051213	L2001	ENTMAGNETISIERUNGSSPULE	DEGUASING COIL	G2
30051246	L204	"BURST-FALLE"	BURST CLEANING COIL	C1
00000006				
30051247	L203	VERZOEGERUNGSLEITUNG,POS. L203	DELAY LINE	C1
30051248	DL 1	VERZOEGERUNGSLEITUNG, POS.DL1	Y-DELAY LINE	M1
30051250		VERZOEGERUNGSLEITUNG	DELAY LINE	J2
30051177		FILTER, F1037B	FILTER, F1037B	B2
30051175		KERAMIKFILTER, 5,5MHZ	CERAMIC FILTER, 5,5MHZ	C1
30051156	L1201	NETZFILTER	LINE FILTER	F2
00000006				
30051249	K.H.F.	REGLERSATZ, 10+10+1KOHM	POTENTIOMETER,10+10+1KB	X1
30051253	SW407-410	DRUCKTASTER	KEY PUSH SWITCH	D1
30051252	SW402-406	DRUCKTASTER	RUBBER KEY SWITCH	S1
30051254	TV/AV	SCHIEBESCHALTER	SWITCH	A1
30051251	AFC	SCHIEBESCHALTER	SWITCH	C1
30051215		TRIMMKONDENSATOR, 20PF	TRIMMER COPACITOR	A1
30051456		QUARZ, 4,43MHZ	CRYSTAL, 4,43MHZ	M1
30051256	R601	THERMISTOR	P.T.C.THERMISTOR	F1
00000006				
00000006				
00000006				
+M490	IC401	IC M490	IC M490	F3
+TDA1904P	IC103	IC TDA1904P	IC TDA1904P	S1
+TDA2320	IC701	IC TDA2320P	IC TDA2320P	Z1
+L5630	IC102	IC L5630	IC L5630	L1
+TA7680AP	IC101	IC TA7680AP	IC TA7680AP	K2
+TA7698AP	IC201	IC TA7698AP	IC TA7698AP	X2
+M708L	IC801	IC M708L	IC M708L	M2
00000006				
00000006				
-2SA1015		TR 2SA1015	TR 2SA1015	E1
-2SK30	Q412	TR 2SK30	TR 2SK30	01
-BSX20	Q401	TR BSX20	TR BSX20	E1
-2SC2120	Q802	TR 2SC2120	TR 2SC2120	E1

T E C WARENSERVICE E R S A T Z T E I L P R E I S L I S T E VOM: 25.06.87
ROSTOCKER STR. 6-8

GERAETEART: FERNSEHGERAETE, FARBIG, PORTAB BLATT: 5

6200 WIESBADEN-BIERSTADT

MODELL: 30-051 TEC 3653 VR C.T.V.

TEILE-NR.	POSITION	BEZEICHNUNG	DESCRIPTION	PREIS CODE
-2SD1426	Q305	TR 2SD1426	TR 2SD1426	A2
-2SB774	Q602	TR 2SB774	TR 2SB774	C1
-2SD820	Q604	TR 2SD820	TR 2SD820	C2
-2SD400	Q607	TR 2SD400	TR 2SD400	E1
-2SA1013Y	Q605	TR 2SA1013Y	TR 2SA1013Y	D1
-2SC3309	Q606	TR 2SC3309	TR 2SC3309	P1
-2SC2717	Q101	TR 2SC2717	TR 2SC2717	E1
-2SC1815		TR 2SC1815	TR 2SC1815	E1
-2SC2229	Q104,301	TR 2SC2229	TR 2SC2229	E1
-2SA562	Q201	TR 2SA562	TR 2SA562	E1
-2SC2073	Q302	TR 2SC2073	TR 2SC2073	N1
-2SA940	Q303	TR 2SA940	TR 2SA940	O1
-2SC2482	Q304	TR 2SC2482	TR 2SC2482	G1
00000006				
00000006				
/5.1V	D402	ZENER DIODE 5.1V	ZENER DIODE 5.1V	C1
/8.2V	D605	ZENER DIODE 8.2V	ZENER DIODE 8.2V	C1
/9.1V	D606	ZENER DIODE 9.1V	ZENER DIODE 9.1V	C1
/TPS703	LD701	SILICON PHOTO TR. TPS703	SILICON PHOTO TR. TPS703	T1
/1N4148		DIODE 1N4148	DIODE 1N4148	B1
/1S1555		DIODE 1S1555	DIODE 1S1555	B1
/S5295G		DIODE S5295G	DIODE S5295G	C1
/S5295J	D306	DIODE S5295J	DIODE S5295J	C1
/1S1835	D611	DIODE 1S1835	DIODE 1S1835	C1
/TVR-2D	D304,305	DIODE TVR-2D	DIODE TVR-2D	C1
/DBA10G	D601	DIODE DBA10G	DIODE DBA10G	G1
/1N4004S	D301	DIODE 1N4004S	DIODE 1N4004S	A1
00000006				
/TLR114A	LD404	LED TLR114A	LED TLR114A	C1
00000006				
00000006				
00000006				
EA010120	32	STABANTENNE	ROD ANTENNA	D3
DE010006		LAUTSPRECHER, 16OHM, 1W	LOUDSPEAKER, 16OHM, 1W	B2
00000043	KOPFHOERER	KLINKENEINBAUBUCHSE, 3,5MM *	JACK EARPHONE	F1
GD020014	S1201	DRUCKSCHALTER	PUSH SWITCH	A2
AE020019		BILDROEHRE M. ABLENKEINHEIT	CRT W/DEFLECTION YOKE	B5
00000006				
00000006				
30051499		BEDIENUNGSANLEITUNG	INSTRUCTION BOOKLET	H1
30051500		SERVICE ANLEITUNG	SERVICE MANUAL	
30051501		SCHALTPLAN	SCHEMATIG DIAGRAM	
00000006				
00000006				
30051260		AUSSENKARTON	CARTON BOX	M2
30051268		STYROPORVERPACKUNG, OBEN (R)	POLYFOAM END CAP TOP, "R	D2
30051274		STYROPORVERPACKUNG, OBEN (L)	POLYFOAM END CAP TOP, "L	D2
30051269		STYROPORVERPACKUNG, UNTEN (R)	POLYFOAM END CAP BOTTOM,	D2
30051270		STYROPORVERPACKUNG, UNTEN (L)	POLYFOAM END CAP BOTTOM,	D2

(Preisänderungen und Liefermöglichkeiten vorbehalten.)